EXHIBIT E

FCC Application

Before the
Federal Communications Commission
Washington, DC 20554

In the Matter of	)	
	)	ICFS File No. SAT-MOD-_____
Application For Modification of Space Station License of Ligado Networks Subsidiary LLC	)	Call Sign: S2358

APPLICATION FOR MODIFICATION OF SPACE STATION LICENSE

Vernon Ross
Vice President, Legal and Regulatory Affairs

LIGADO NETWORKS LLC
10802 Parkridge Blvd.
Reston, VA 20191
(877) 678-2920

December 8, 2025

SUMMARY

Chairman Carr recently observed that "the potential of direct-to-cell (D2C) technology promises a fundamental shift in how we think about competition, connectivity, and convergence." In order to help realize this great potential, Ligado Networks Subsidiary LLC, Debtor-in-Possession ("Ligado") proposes to use its available spectrum in combination with cutting-edge satellite technology to make space-based, low-latency mobile 5G services available to U.S. consumers in the near term. This service will complement and be used in conjunction with Ligado's existing SkyTerra-1 satellite.

Ligado files this Modification Application to modify its current satellite license to deploy and operate an L-band mobile satellite system providing service in the United States aboard AST & Science, LLC's (together with its subsidiaries, "AST SpaceMobile") constellation of NGSO satellites in low Earth orbit. Under the proposed approach, Ligado will place an L-band payload (referred to herein as SkyTerra Next) on AST SpaceMobile's LEO constellation. SkyTerra Next will provide mobile satellite service (MSS) in collaboration with AST SpaceMobile to deliver space-based mobile broadband service to U.S. customers using standard devices. AST SpaceMobile will provide feeder link and TT&C operations for SkyTerra Next while Ligado, consistent with FCC precedent, will maintain operational control of the SkyTerra Next payload. Ligado will have ultimate control over the use of its L-band spectrum over North America, including the ability to execute a shutoff function for any of its transmissions in its spectrum. Further, the proposed SkyTerra Next MSS system requires no reallocation or waiver of spectrum rules and will not result in any new interference risks or coordination challenges.

Commission approval of Ligado's Modification Application will enable the rapid deployment of low-latency, high-capacity service from satellites to devices virtually anywhere in the United States, a significant step towards universal broadband connectivity. Approval of this Modification Application is all the more important given SpaceX's announcement of its agreement to purchase EchoStar's S-band spectrum, since the Commission will want to ensure the market for space-based mobile broadband is competitive, dynamic, and responsive to the increasing threat from China. The Commission can act promptly on this Modification Application and the services can in turn be deployed across the United States promptly because Ligado will deliver the subject services using L-band spectrum for which the company already has licensed and coordinated access over North America. Moreover, the proposed space system will operate within the existing parameters of Ligado's coordination agreements and does not require waiver of any spectrum requirements. Furthermore, Inmarsat and Viasat have agreed that they will affirmatively support this Modification Application provided that it satisfies certain agreed upon conditions, and the Modification Application fully meets those requirements.

This Modification Application enables the Commission to greenlight service in the burgeoning U.S. mobile satellite direct-to-device market without reallocating spectrum, changing frequencies, or introducing new coexistence considerations. Approval of this Modification Application also advances important spectrum policy goals by promoting intensive and innovative use of vital mid-band spectrum for satellite-based U.S. mobile broadband services. As such, the Modification Application aligns with the Commission's longstanding approach of enabling spectrum licensees to adjust their licenses to make use of the latest technology.

Perhaps more importantly, the proposed system will unlock valuable new use cases and yield transformative public interest benefits in the United States—particularly for users in rural or hard-to-reach areas of the United States, or those affected by natural disasters and other emergencies. As the satellite industry continues its shift towards LEO satellites, Ligado's flexible (and already coordinated) mid-band spectrum is ideally situated for rapid deployment of LEO infrastructure via collaboration with AST SpaceMobile to deliver space-based mobile broadband services to users across the United States. Additionally, Ligado's existing geostationary operations in the L-band, which currently serve millions of devices across the United States, create opportunities for groundbreaking complementary services combining the benefits of geostationary and LEO NGSO technology.

Because grant of this Modification Application authorizes services only in the United States within spectrum already licensed to and coordinated by Ligado for use in North America, the Commission's precedents and public interest considerations indicate that this Modification Application should not initiate a processing round. Insofar as the Bureau determines that this Modification Application arguably could trigger a processing round, we respectfully request a waiver of those procedures in the attached waiver request. As discussed below, a processing round would severely undermine the public interest by compromising rapid deployment of this spectrum to Americans nationwide.

For these reasons and others outlined in more detail below, Ligado respectfully requests that the Commission move quickly to grant this Modification Application.

TABLE OF CONTENTS

I. THE PROPOSED SYSTEM 5

II. LIGADO'S PROPOSAL IS IN THE PUBLIC INTEREST 7

A. SkyTerra Next Will Improve Utilization of Spectrum Without Creating Harmful Interference 10

B. The SkyTerra Next System Will Improve Coverage and Foster Competition for American Consumers 13

III. LEGAL AND TECHNICAL QUALIFICATIONS 17

IV. A PROCESSING ROUND IS NOT REQUIRED OR IN THE PUBLIC INTEREST 17

V. ITU COST RECOVERY 21

CONCLUSION 22

Before the
Federal Communications Commission
Washington, DC 20554

In the Matter of	)	
	)	ICFS File No. SAT-MOD-_____
Application For Modification of Space Station License of Ligado Networks Subsidiary LLC	)	Call Sign: S2358

APPLICATION FOR MODIFICATION OF SPACE STATION LICENSE

Chairman Carr has recognized that "America's space economy is the envy of the world" and stated that, to expand U.S. leadership in space, the Commission "will focus . . . on speed, simplification, and ensuring [satellite operators] have the spectrum resources necessary to fuel this sector's growth."[1] Approval of this Modification Application by Ligado Networks Subsidiary LLC, Debtor-in-Possession ("Ligado") is consistent with this mission and will advance the growing role of space in our daily communications. Ligado currently operates the geostationary SkyTerra-1 satellite at 101.3° W.L.[2] and files this modification to add, deploy, and operate a Mobile-Satellite Service ("MSS") system ("SkyTerra Next")[3] for use in the L-band in the United

[1] FCC, Statement of Chairman Brendan Carr, *FCC Chairman Carr Announces Early Wins at Launch of Satellite Week* (Mar. 10, 2025), https://www.fcc.gov/document/fcc-chairman-carr-announces-early-wins-launch-satellite-week.

[2] *See* Call Sign S2358, *In re Mobile Satellite Ventures Subsidiary LLC*, Order and Authorization 20 FCC Rcd 9752 (IB 2005) (granting Ligado's SkyTerra-1 license); ICFS File No. SAT-MOD-20151231-00091 (granted June 23, 2025). Ligado has filed to renew its authorization for SkyTerra-1. *See* ICFS File No. SAT-MOD-20251126-00344.

[3] As described below, the "SkyTerra Next" system comprises payloads to be deployed aboard 96 NGSO satellites in the AST SpaceMobile Constellation to be authorized by the FCC to operate in the L-Band in the United States.

States aboard the AST & Science, LLC (together with its subsidiaries, "AST SpaceMobile") constellation of non-geostationary ("NGSO") satellites in low Earth orbit ("LEO") (the "AST SpaceMobile Constellation").[4] Thus, Ligado's geographic and spectrum scope of services to be authorized by this Modification Application is not modified by this application. Approval of this Modification Application will allow Ligado to partner with AST SpaceMobile to provide new direct-to-device MSS services in the L-band in the United States via SkyTerra Next, thereby promoting enhanced service to businesses, government users, and consumers across the United States, including in areas without mobile broadband. Additionally, approval of the Modification Application will complement Ligado's existing geostationary operations that currently serve millions of MSS devices in the United States used by consumers as well as public safety and others in the critical communications sector.[5]

The Commission has long permitted space station licensees to operate their services as payloads on separately licensed satellites, and Ligado's proposed modification is consistent with these precedents.[6] As Chairman Carr recently observed, "[t]o help America's space companies

[4] *See* Call Sign S3065, ICFS File Nos. SAT-AMD-20250903-00248 (Sept. 3, 2025), SAT-AMD-20250718-00181 (Jul. 21, 2025), SAT-MOD-20250612-00145 (Jun. 12, 2025) (seeking modification of AST SpaceMobile's license to permit operation of a constellation of 248 NGSO satellites on specified frequencies); *see also* ICFS File Nos. SAT-AMD-20240311-00053, SAT-AMD-20230717-00172, SAT-AMD-20201028-00126, SAT-AMD-20200727-00088, SAT-LOA-20200413-00034; *In re AST & Science LLC,* Order and Authorization, 39 FCC Rcd 8558 (SB 2024) (authorizing AST SpaceMobile's original five-satellite NGSO constellation).

[5] Ligado will file a separate submission concerning modification of its existing blanket mobile earth terminal licenses (Call Signs E930367 and E980179) to add the proposed L-band space stations as a point of communication, and a notification reflecting an increase in the number of devices that may be operated under those licenses.

[6] *See, e.g.*, *In re Lockheed Martin Corp.*, Order and Authorization, 20 FCC Rcd 11023, 11029 ¶ 19 (IB June 23, 2005) ("LM RPS 1 will operate as a payload on the Galaxy XV satellite.") (citing *In re GTE Spacenet Corp.*, 2 FCC Rcd 5312 (CCB Aug. 28, 1987)) (hereinafter "*Lockheed Payload Order*"); *In re Lockheed Martin Corp*., Order and Authorization, 20 FCC Rcd 14558, 14569 ¶ 32 (IB Sept. 8, 2005) (authorizing Lockheed Martin Corporation to "construct, launch, and operate (continued…)

continue to succeed and grow, we are not only working to speed up and simplify our processes, but we are also working to promote more flexibility. After all, a one-size-fits-all approach to regulation does not match the realities of the evolving space economy."[7] Approval of this modification will advance American technological leadership in the face of increasing launch activity by China and other global competitors.[8] This Modification Application is consistent with the Commission's leadership and ample precedent, by which AST SpaceMobile will provide the telemetry, tracking, and control ("TT&C") and feeder link operations in connection with the satellites in the AST SpaceMobile Constellation (Call Sign S3065). Ligado will be responsible for ensuring compliance by SkyTerra Next with the terms of this license, including all U.S. L-band MSS operational requirements and other operating conditions or coordination requirements adopted by the Commission.[9]

---

its LM-RPS2 space station aboard Telesat Canada Corporation's ANIK F1R satellite"); *see also, e.g.*, Stamp Grant, ICFS File No. SAT-LOA-20190617-00048 (IB May 27, 2020) (granting Viasat a space station license to operate a separate, Commission-authorized payload on "the same satellite bus as Viasat's VIASAT-3 space station"); Stamp Grant, ICFS File No. SAT-RPL-20120216-00018 (IB May 25, 2012) (issuing Intelsat North America LLC a license to operate a Ku-band payload on a Netherlands-licensed satellite operated by New Skies Satellites B.V.); Stamp Grant, ICFS File No. SAT-A/O-20091208-00141 (IB June 4, 2010) (issuing Intelsat North America LLC a license to operate a Ku-band payload on a Luxembourg-licensed satellite operated by New Skies Satellites B.V.).

[7] FCC, Statement of Chairman Brendan Carr, *Expediting Initial Processing of Satellite and Earth Station Applications and Space Innovation*, IB Docket Nos. 22-411 and 22-271, Second Report and Order (August 7, 2025).

[8] *See* U.S.-China Economic and Security Review Commission, *The Rocket's Red Glare: China's Ambitions to Dominate Space* (April 3, 2025), https://www.uscc.gov/hearings/rockets-red-glare-chinas-ambitions-dominate-space.

[9] *See, e.g.*, *Lockheed Payload Order*, 20 FCC Rcd at 11029 ¶ 19 (describing an analogous division of responsibilities between Lockheed Martin Corporation, the licensee for the payload, and Panamsat, the licensee for the satellite itself); *In re Lockheed Martin Corp.*, 20 FCC Rcd at 14562 ¶ 10 (similar, noting that although Telesat was responsible for TT&C operations, "Lockheed, however, remains responsible as a licensee for ensuring compliance with the terms and conditions of this license, and the Commission rules, including the Commission's station-keeping requirements"); *In re GTE Spacenet Corp.*, 2 FCC Rcd 5312 (CCB 1987) (requiring that the (continued…)

The modification of Ligado's L-band license to permit NGSO operations in the United States alongside Ligado's current geosynchronous orbit ("GSO") operations via an L-band payload on the AST SpaceMobile Constellation also is in line with Commission precedent. The Commission previously has granted applications for modification of a GSO license to permit NGSO operations or vice versa where the public interest is served.[10] Approval of the present modification promotes the public interest because it will enable more efficient and intensive use of L-band spectrum in the United States, will accelerate the time to market of U.S. mobile broadband direct-to-device services in the L-band, will enable enhanced critical communications services in the United States, and will create competition in the growing market for U.S. mobile broadband NGSO services, which is undergoing rapid change given SpaceX's announcement of its agreement to purchase EchoStar's S-band spectrum. The impact of delivering these types of broadband 5G services in the United States via NGSO satellites utilizing lower midband spectrum is profound since it ensures nationwide access to a robust satellite-based platform, including in times of natural disasters when terrestrial communications networks may be unavailable. This request also aligns with the Commission's goal of maximizing utilization of satellite spectrum; Chairman Carr has stated that satellite spectrum is "necessary for American leadership" and

payload licensee "maintain responsibility for the operation and control of the . . . payload" even though the payload licensee was not directly responsible for TT&C operations).

[10] *See, e.g.*, *In re ICO Satellite Services GP*, Memorandum Opinion and Order, 20 FCC Rcd 9797 ¶ 21 (IB 2005) ("Hence, there is no Commission rule or policy that precludes modification of a 2 GHz MSS spectrum reservation to change the orbital-architecture specification from NGSO to GSO."); *see also id.* ¶ 21 n.32 ("The Bureau has accordingly granted a previous request for modification of a 2 GHz MSS license that originally provided for operation of an NGSO system to authorize operation with a single GSO satellite instead . . . *Cf.* [*In re Sirius Satellite Radio, Inc.*, Order and Authorization, 16 FCC Rcd 5419 (IB 2001)] (granting request for modification from GSO to NGSO)."); *In re Applications of the Boeing Co.*, Order and Authorization, 18 FCC Rcd 12317 (IB 2003) (authorizing an NGSO-to-GSO modification).

acknowledged that "[e]very megahertz matters."[11]

I. THE PROPOSED SYSTEM

Ligado seeks authority to use its licensed L-band MSS spectrum to which it has existing coordinated access for North America to provide space-based mobile broadband connectivity to user devices throughout the United States in collaboration with AST SpaceMobile. Specifically, Ligado seeks authorization to operate SkyTerra Next as an MSS payload aboard the AST SpaceMobile Constellation to provide service in the United States, along with the capability of service coverage over North America, using frequencies for which Ligado already has coordinated access in the 1525-1544/1545-1559 MHz (space-to-Earth) and 1626.5-1645.5/1646.5-1660.5 MHz (Earth-to-space) bands. The provision of service by any operation of SkyTerra Next outside the L-band or outside the United States would have to be authorized through separate applications. A related filing will be made with the International Telecommunication Union ("ITU") by the United States.

The SkyTerra Next system will be deployed on ninety-six (96) NGSO satellites in the AST SpaceMobile Constellation, which are equipped with large phased-array antennas capable of forming multiple steerable beams. The SkyTerra Next space stations[12] will operate aboard the AST SpaceMobile Constellation in LEO at an altitude of 690 km, one satellite per orbital plane, 53 degrees inclination, with an orbital period of 1 hour and 38 minutes. The orbital planes will be

[11] *See*, FCC, Statement of Chairman Brendan Carr, *FCC Looks to Unleash More Spectrum for Satellite Spectrum Abundance* (May 27, 2025), https://www.fcc.gov/document/fcc-looks-unleash-more-spectrum-satellite-spectrum-abundance/carr-statement.

[12] As used herein, the term "space station" has the meaning given in the ITU Radio Regulations, *i.e.,* one or more transmitters, or receivers or a combination of transmitters and receivers necessary for carrying on a radiocommunication service, and located on an object which is beyond, or is intended to go beyond, the major portion of the Earth's atmosphere. *See* ITU Radio Regulations Articles 1.61 and 1.64.

spaced by 3.75 degrees in Right Ascension of the Ascending Node. The full orbital parameters for SkyTerra Next are provided in Schedule S. Consistent with the existing allocations of these bands, SkyTerra Next will provide transmissions to mobile earth stations in the United States in the 1525-1544/1545-1559 MHz (space-to-Earth) frequency bands and will receive from mobile earth stations in the 1626.5-1645.5/1646.5-1660.5 MHz (Earth-to-space) frequency bands.

SkyTerra Next will rely on an electronic steerable antenna system to manage transmission and reception of L-band signals at various power levels, permitting dynamic adjustment of its coverage and communication beams. This system also will enable Ligado to manage the radiated power to each beam based on operational needs, regulatory or contractual limitations, user requirements, and interference-avoidance considerations.

Ligado will retain sole responsibility for ensuring that the operation of SkyTerra Next adheres to the Commission's rules and the terms and conditions of its license, and it will have ultimate operational control over SkyTerra Next. In keeping with Commission precedent, this control will include the ability to turn off, at Ligado's sole command and to the extent required by the Commission, the operations and transmissions of SkyTerra Next.[13] Ligado will be able to execute this shutoff function without the concurrence of AST SpaceMobile. Once SkyTerra Next has been deactivated, AST SpaceMobile will not be able to reactivate it without Ligado's authorization. This control will be memorialized in an agreement between Ligado and AST SpaceMobile that will establish Ligado's ultimate control over SkyTerra Next, including the company's ability to turn on or off SkyTerra Next and to use SkyTerra Next to transmit L-band frequencies in the United States pursuant to its license. The agreement also will provide that

[13] *See, e.g.*, *In re Lockheed Martin Corp.*, 20 FCC Rcd at 14563 ¶ 11 ("Lockheed will have the capability of 'turning off' the LM-RPS2 payload so that no radio emissions are generated by that payload.").

Ligado is responsible for regulatory compliance of SkyTerra Next, including payment of regulatory fees.

II. LIGADO'S PROPOSAL IS IN THE PUBLIC INTEREST

The Commission has previously found that modifying GSO systems to permit NGSO operations is in the public interest.[14] Granting this Modification Application will benefit the public by strengthening access to space-based mobile broadband connectivity services throughout the United States, including in remote areas with little or no broadband penetration, without causing harmful interference to other spectrum users. Approval of this Modification Application also is consistent with the Commission's goals of promoting innovation and investment in our space economy, enhancing connectivity, and promoting spectrum efficiency.[15]

New generation NGSO satellite systems "are bringing fast and reliable high-speed Internet to even more parts of the country…."[16] To facilitate this growth, Chairman Carr has made clear that he is "committed to making sure outdated Commission rules do not stifle investment and innovation, especially in the case of new satellite broadband services where the potential benefits are so great."[17] That paradigm applies here. Rapid growth in the market for NGSO-based connectivity services has created an exciting opportunity for L-band MSS spectrum to soon be

[14] *See, e.g.*, *In re Sirius Satellite Radio, Inc.*, Order and Authorization, 16 FCC Rcd 5419 ¶¶ 4-5 (IB 2001) (permitting modification of a GSO license to NGSO and noting that "it is the Commission's policy to permit licensees to modify satellite systems, when possible, to make design improvements," and "allow the licensee to take advantage of the latest technology in providing service to the public").

[15] *See* FCC, Statement of Chairman Brendan Carr, *FCC to Review Spectrum Sharing Rules to Unleash Space Innovation* (Apr. 29, 2025), https://www.fcc.gov/document/fcc-review-spectrum-sharing-rules-unleash-space-innovation-0.

[16] *Id*.

[17] *Id.*

used to deliver vital services to consumers and increase competition in a market where spectrum, especially spectrum well-suited for space-based mobile broadband applications providing direct service to user devices, is increasingly scarce. Put simply, granting this Modification Application will support more intensive use of spectrum to which Ligado already has exclusive coordinated access by authorizing the provision of space-based mobile broadband services in the United States through a modern NGSO platform, unlocking valuable new use cases and creating a competitive market for space-based mobile broadband services across the United States without raising new interference or coordination concerns.

Among other existing coordination frameworks and agreements, Ligado has worked with Inmarsat to ensure SkyTerra Next will coexist with Inmarsat and Viasat operations in the L-band. This work resulted in an amended cooperation agreement with Inmarsat (the "Amended Inmarsat Cooperation Agreement") pursuant to which Ligado has agreed that use of the L-Band by SkyTerra Next (which is referred to in the Amended Inmarsat Cooperation Agreement as "the Proposed NGSO System") will comply with the Amended Inmarsat Cooperation Agreement, and that recognizes the proposed North American L-band NGSO operations are consistent with and coordinated under the cooperation arrangement between Ligado and Inmarsat. In exchange for this agreement, the Amended Inmarsat Cooperation Agreement states that Inmarsat affirmatively supports the grant of regulatory applications seeking authority to operate the Proposed NGSO System within the L-Band in North America and meeting certain requirements set forth in the Amended Inmarsat Cooperation Agreement, including supporting FCC grant of this Modification

Application to authorize L-band service on SkyTerra Next in the United States, given that it meets all of the requirements for such affirmative support.[18]

The mechanism to accomplish this goal of providing space-based mobile broadband to U.S. consumers—Ligado placing a satellite system payload that it will control on another satellite system—has been approved by the Commission in similar contexts, including where the licensee operating a space station payload relies on another licensee to handle TT&C operations.[19] Further details regarding the AST SpaceMobile Constellation and its operations in the United States, including with respect to orbital debris mitigation, TT&C, feeder links, and positioning, are set out in AST SpaceMobile's pending applications.[20]

Many satellite industry leaders have recognized a fundamental shift in emphasis towards NGSO satellites and the functionality and versatility they enable, a development that was facilitated by the Commission's streamlined approval process for NGSO systems.[21] This shift is

[18] The terms of Inmarsat's affirmative support were set out in an agreement negotiated between the parties and approved by the bankruptcy court overseeing Ligado's reorganization. SkyTerra Next is the "Proposed NGSO System" referred to therein. *See* Order Authorizing the Debtors to Enter into the AST Definitive Documents and Granting Related Relief, *In re Ligado Networks LLC et al.*, No. 25-10006 (Bankr. Del. June 23, 2025). In this Modification Application, Ligado is only seeking the Commission's approval for L-band operations within the United States.

[19] *See supra*, note 9.

[20] *See* ICFS File Nos. SAT-AMD-20250903-00248 (Sept. 3, 2025), SAT-AMD-20250718-00181 (Jul. 21, 2025), SAT-MOD-20250612-00145 (Jun. 12, 2025), SAT-AMD-20240311-00053 (Mar. 11, 2024), SAT-AMD-20230717-00172 (Jul. 17, 2023), SAT-AMD-20201028-00126 (Oct. 28, 2020), SAT-AMD-20200727-00088 (Jul. 27, 2020), SAT-LOA-20200413-00034 (Apr. 13, 2020).

[21] *See, e.g.*, 47 C.F.R. § 25.122 (small satellite streamlining rules); *In re Expediting Initial Processing of Satellite and Earth Station Applications*, Report & Order, 38 FCC Rcd 8838 (rel Sept. 22, 2023); *In re Expediting Initial Processing of Satellite & Earth Station Applications Space Innovation*, Second Report & Order, FCC 25-48, (rel. Aug. 8, 2025). *See also* Telesat, *Q2 2025 Results Presentation* (Aug. 6, 2025), https://www.telesat.com/wp-content/uploads/2025/08/25Q2-transcript.pdf (commenting on the prospect of investing in new GEO satellites, Telesat's CEO recently said: "we haven't been able to close a business case on either a new GEO satellite or even a replacement GEO satellite, just given everything that's been going on in the market.").

driven by an ever-increasing demand for lower latency applications, and the instant Modification Application helps meet that need.

A. SkyTerra Next Will Improve Utilization of Spectrum Without Creating Harmful Interference

SkyTerra Next will provide service in the United States using L-band spectrum to which Ligado has long held coordinated access and currently uses to provide MSS services through its SkyTerra-1 satellite.[22] Providing mobile satellite services via SkyTerra Next enables leading-edge satellite technology to deliver space-based mobile broadband services direct to U.S. consumer devices without any additional assignments of spectrum. The proposed system will intensify the utilization of existing licensed spectrum by deploying the distinct advantages of NGSO technology without using additional frequencies or raising new spectrum interference issues. By leveraging the rapidly developing AST SpaceMobile Constellation, SkyTerra Next will utilize L-band MSS spectrum to provide space-based mobile broadband in the United States without the lengthy delays that typically are associated with designing, launching, and coordinating a new satellite network.

NGSO satellites in low Earth orbit offer advantages as compared to higher-orbiting GSO satellites. Orbiting at an altitude of just a few hundred kilometers, NGSO systems offer far lower latency, greater signal strength, and better return link margins than satellite systems positioned tens of thousands of kilometers higher. This makes them better suited for latency-sensitive, low power, low antenna gain mobile earth stations or high-bandwidth applications. Additionally, NGSO satellites can be deployed more quickly and flexibly than GSO satellites.

[22] Ligado also holds a long-term lease with Castle Crown for use of the 1670-1675 MHz terrestrial band. *See In re OP LLC (Crown Castle Int'l Corp.)*, Memorandum Opinion and Order, 22 FCC Rcd 4322 (2007).

Providing MSS in the United States from SkyTerra Next will complement Ligado's existing geostationary SkyTerra-1 satellite, and managing these networks in tandem will provide broader, more consistent coverage, lower latency and enhanced capacity, all while preserving critical GSO-based services and enabling the highest and most intensive use of the band. Management of the GSO and NGSO on a coordinated and dynamic basis will be accomplished using a Spectrum Management System,[23] thus assuring operation that is free of in-system interference. This novel approach can work because mid-band spectrum like Ligado's L-band spectrum offers excellent performance characteristics for both GSO and NGSO use. Adding NGSO capabilities to an existing GSO network combines the best qualities of each type of satellite—the GSO assets will provide a broad, consistent coverage footprint, while the NGSO assets will offer low latency, flexibility, and enhanced capacity. This synergy could enable a uniquely adaptable service offering that will represent a valuable contribution to the nation's satellite-based communications infrastructure.

The use of licensed MSS spectrum in the United States over SkyTerra Next is consistent with existing FCC and ITU coordination frameworks and also with Ligado's existing L-band coordination agreements, including its recent agreement to terms to secure Viasat's and Inmarsat's affirmative support for this Modification Application.[24] In addition, SkyTerra Next will have even smaller, more focused coverage footprints thereby making it easier to manage co-channel

[23] The Spectrum Management System tool will manage and control the time, frequency sub-bands and geographic areas where beams from GSO and NGSO systems will operate. The Spectrum Management System will be used to maximize spectrum usage while minimizing intersystem interference between GSO and NGSO systems.

[24] *See* Order Authorizing the Debtors to Enter into the AST Definitive Documents and Granting Related Relief, *In re Ligado Networks LLC et al.*, No. 25-10006 (Bankr. Del. June 23, 2025).

interference with other systems operating in the same band.[25] Throughout its more than two-decade history of operations as an MSS licensee, Ligado has worked diligently with other licensees and government stakeholders to establish technical parameters for coexistence in the L-band, including by establishing emissions limits that mitigate risks of harmful interference. SkyTerra Next will operate within the parameters defined by these existing—and longstanding—coordination agreements, such that other L-band stakeholders will not be exposed to new risks of harmful interference.[26] The operations of all AST and Ligado spacecraft, individually and taken as a whole, and regardless of orbit, will be consistent with and remain within the technical, geographic and other limitations in the Amended Inmarsat Cooperation Agreement and Ligado's other coordination agreements with various parties. Ligado requests that the Commission recognize that the operations of the SkyTerra Next system have been coordinated subject to the terms of the Amended Inmarsat Cooperation Agreement and the Inmarsat-AST Agreement and give effect to such agreements by licensing SkyTerra Next to operate in accordance with the terms of such agreements.

No waiver of the spectrum rules is necessary to approve this Modification Application since Ligado's spectrum already is authorized and coordinated for North American MSS

[25] Satellite beamforming uses the process of shaping and steering a satellite's radio beams—using antennas and signal processing—so that the transmitted or received energy is concentrated in specific directions, instead of spreading evenly in all directions. By controlling the amplitude (strength) and phase (timing) of signals feeding each antenna element, the combined radio waves reinforce each other in desired directions (constructive interference) and cancel out in others (destructive interference). More focused energy can place nulls in certain directions to protect other systems and reduce interference. This makes communications more efficient, increases capacity, and allows dynamic targeting of service areas.

[26] Ligado will make use of feeder links in other bands in collaboration with AST SpaceMobile; to the extent in the future Ligado will use feeder links that require coordination with an Inmarsat or Viasat NGSO system as required under the Amended Inmarsat Cooperation Agreement, the company will engage in such coordination.

operations like the use being proposed here.[27] The proposal is compliant with all applicable FCC requirements and regulations for the operation of MSS services in the L-band in the United States, as discussed in the Technical Supplement submitted with this Modification Application, and will not cause harmful interference to the Global Position System or other adjacent band services.

B. The SkyTerra Next System Will Improve Coverage and Foster Competition for American Consumers

Grant of this Modification Application will enable the availability of space-based mobile broadband services to consumers, businesses, and governmental entities across the United States in the near term. Specifically, the SkyTerra Next system will enable space-based mobile broadband for millions of user devices in the United States without requiring the buildout of additional terrestrial wireless infrastructure. SkyTerra Next will provide increased breadth and quality of nationwide mobile broadband coverage in a spectrum-efficient manner. Importantly, Ligado's proposed services will help the Commission ensure all Americans enjoy connectivity, including by delivering mobile broadband services directly to devices across rural regions, supporting emergency response, and assisting remote industrial operations, including where terrestrial infrastructure is not available.[28] The system also will have the ability to support

[27] As described below, the Commission's precedents suggest that this Modification Application should not initiate a processing round under the Commission's rules. However, should the Commission conclude otherwise, Ligado has included a request for a waiver of the processing round rules in the attached Waiver Request. *See* Section IV, *infra*.

[28] *See In Re Modernizing Spectrum Sharing for Satellite Broadband Revision of the Commission's Rules to Establish More Efficient Spectrum Sharing Between NGSO & GSO Satellite Sys.*, Notice of Proposed Rulemaking, FCC 25-23, SB Docket No. 25-157 ¶ 3 (SB Apr. 29, 2025) (remarking on the recent growth of NGSO deployment and its benefits).

alternative positioning, navigation, and timing ("PNT") services, a key objective for the President and the Commission.[29]

Because the system will be resilient to natural disasters (*e.g.*, earthquakes, wildfires, hurricanes, storms, or floods) and other phenomena that may affect or even disable terrestrial communications infrastructure on a local or regional basis, it will be able to provide services during emergencies that might otherwise compromise communications among affected communities, first responders, government officials, and others.

Use of the SkyTerra Next NGSO system alongside Ligado's SkyTerra-1 GSO satellite will provide an additional degree of resiliency. GSO and NGSO systems operate in different locations in space—SkyTerra-1 operates at approximately 36,000 kilometers (22,500 miles) above Earth, and SkyTerra Next will operate on AST SpaceMobile satellites located at approximately 690 kilometers (429 miles) above Earth. As a result, the proposed GSO/NGSO system will have an increased resilience against natural anomalies, and also against possible malicious actions like physical or hybrid attacks on space stations.

Modifying Ligado's existing license to permit operation of SkyTerra Next aboard AST SpaceMobile's NGSO satellites—in addition to Ligado's existing GSO infrastructure—will also enhance the proposed system's coverage capabilities. NGSO satellites offer lower latency, stronger signal strength, and higher return-link sensitivity due to lower path loss (given low level signals transmitted from mobile earth stations equipped with low gain antennas and reception from multiple directions compared to GSO satellites). Additionally, the SkyTerra Next system will be

[29] *See In re Promoting the Development of Positioning, Navigation, and Timing Technologies and Solutions*, Notice of Inquiry, FCC 25-20 (Mar. 28, 2025); Comments of AST & Science, Inc., WTB Docket No. 25-110 (filed Apr. 29, 2025). *See also* Executive Order 13905, Strengthening National Resilience Through Responsible Use of Positioning, Navigation, and Timing Services, 85 Fed. Reg. 9359 (Feb. 12, 2020).

resilient to blockages across viewing angles. All of these features will enable the proposed system to deliver more robust, reliable and resilient mobile broadband services in the United States.

Authorizing Ligado to add this NGSO capability will also benefit the public interest by providing U.S. consumers with additional choice in the market for mobile broadband NGSO services. In light of SpaceX's announcement of its agreement to purchase EchoStar's S-band spectrum, which it plans to use to provide mobile broadband NGSO services, approval of this Modification Application is an opportunity to introduce competition into what could otherwise be a one-firm-dominated market.[30] Given that satellite spectrum suitable for high-throughput space-based mobile broadband using NGSO connectivity is limited, enabling Ligado to use its existing spectrum for this purpose will provide a ready-made means of ensuring a robust and competitive market for U.S. space-based mobile broadband services. Robust competition among operators using a variety of technologies and spectrum bands will accelerate and enhance progress towards the next generation of mobile connectivity. Promoting rapid deployment of flexible new connectivity offerings accessible across unserved and underserved areas of the United States *using already licensed spectrum* aboard a constellation that will be deployed in the near term provides the Commission with a near-term win in its ongoing efforts to enable accessible universal nationwide connectivity.[31] This approach also aligns with the Commission's adoption of rules governing Supplemental Coverage from Space ("SCS") offerings: as Ligado has previously noted,

[30] *See* SpaceX, *The Future of Starlink Direct to Cell* (Sept. 8, 2025), https://www.spacex.com/updates#dtc-gen2-spectrum.

[31] *See, e.g.*, *Inquiry Concerning Deployment of Advanced Telecommunications Capability to All Americans in a Reasonable and Timely Fashion*, Fourteenth Broadband Deployment Report, 36 FCC Rcd 836 ¶ 2 (2021) (noting that as of 2019 14.5 million Americans lacked access to fixed terrestrial broadband with benchmark download and upload speeds of 25 Mbps and 3 Mbps, respectively).

direct-to-device MSS systems can offer SCS-like capabilities in bands not designated for SCS, further increasing the range of options in the market.[32]

Additionally, as set out in AST SpaceMobile's filings describing the AST SpaceMobile Constellation, AST SpaceMobile is a U.S.-based company with a growing manufacturing and operations facility in Midland, Texas, and a research and development facility in Maryland, among other U.S.-based facilities. AST SpaceMobile has already developed and is building a space-based cellular broadband network.[33] It currently operates six satellites in LEO and has plans to build and launch up to sixty additional satellites before the end of 2026.[34] AST SpaceMobile's satellites have successfully demonstrated space-based 5G connectivity to unmodified smartphones.[35] Construction and launch of the satellites used to deliver these services is delivering American manufacturing jobs, as well as long-term maintenance and operations-management jobs.

In sum, granting this Modification Application aligns with the public interest by increasing competition, fostering economic growth, protecting neighboring spectrum users, and enhancing national security through resilient, widespread connectivity on American-made satellites.

---

[32] *See In re Single Network Future: Supplemental Coverage from Space*, Comments of Ligado Networks LLC, FCC 23-22, IB Docket No. 22-271 at 4 (filed May 12, 2023); *see also In re Globalstar Licensee LLC Petition for Declaratory Ruling Granting Access to the U.S. Market for the Globalstar C-3 MSS System*, Petition for Declaratory Ruling, ICFS File No. SAT-PPL-20250214-00047 at 3-7 (filed Feb. 14, 2025).

[33] *See In re Establishing a 5G Fund for Rural America*, Comments of AST & Science LLC, GN Docket No. 20-32, at 2 (Apr. 1, 2025).

[34] *See id.* at 2-3.

[35] AST SpaceMobile, *AST SpaceMobile Makes History in Cellular Connectivity, Completing the First-Ever Space-Based Voice Call Using Everyday Unmodified Smartphones* (Apr. 25, 2023), https://ast-science.com/2023/04/25/ast-spacemobile-makes-history-in-cellular-connectivity-completing-the-first-ever-space-based-voice-call-using-everyday-unmodified-smartphones/.

III. LEGAL AND TECHNICAL QUALIFICATIONS

Ligado is legally qualified to hold a space station license and to operate the proposed SkyTerra Next system. Ligado holds a range of Commission licenses to operate space and earth stations, including in connection with the L-band frequencies to be used as part of this system,[36] and its legal qualifications are otherwise described in the attached Form 312 and elsewhere in this Modification Application. Ligado's ownership information is included as an attachment to this Modification Application.

Ligado is also technically qualified to hold a space station license, and relevant information regarding the technical characteristics of the proposed space stations is included in Form 312, Schedule S, and the Technical Supplement attached to this Modification Application.

IV. A PROCESSING ROUND IS NOT REQUIRED OR IN THE PUBLIC INTEREST

The proposed SkyTerra Next system will advance the public interest benefits associated with Ligado's current spectrum use by enabling next-generation NGSO technology in the United States using the same spectrum allocation and without introducing harmful interference risks. Accordingly, consistent with Commission precedent and the Commission's rules, this Modification Application should not be subject to the Commission's processing round procedure on the grounds that the processing round rules do not apply or because the rules should be waived since adherence to the rules in this circumstance is not consistent with the public interest.[37]

[36] *See Ligado 2020 Order* ¶ 9.

[37] To the extent the Commission deems the processing round rules in Sections 25.156(d) and 25.157 applicable to the instant Application, a waiver of those rules is requested in the attached document.

The Commission has long held that where a requested modification does not raise new interference concerns, the processing round procedures do not apply. The Commission's rules do not contemplate the use of a processing round or queue for a modification request that serves the public interest and does not seek to relocate a GSO satellite, add a frequency band to the authorization, or increase the authorized bandwidth of a satellite.[38] And Commission precedent establishes that only "if the modification application were to present significant interference problems" would the Commission "treat the modification as a newly filed application and . . . consider the modification application in a subsequent satellite processing round."[39] The Commission approvingly cited that precedent in the *2021 SpaceX Order*, noting that under "the *Teledesic Order*, if a modification would present significant interference problems, grant of the modification would not be in the public interest, and that the application should instead be treated as a newly-filed application for processing round purposes."[40]

Those precedents merit further description. In a 1999 order relied on in recent processing round decisions, the International Bureau granted Teledesic's application to modify its space station authorization to reflect technological advances made since its system was designed, including by altering the altitude of some satellites, without requiring a processing round.[41] Teledesic had been initially authorized in 1997 to launch an NGSO system in a portion of the Ka-band, and its modification did not change the amount or location of spectrum to be used or pose

[38] *See* 47 C.F.R. § 25.117(d)(2)(ii)-(iv).

[39] *In re Teledesic LLC*, Order and Authorization, 14 FCC Rcd 2261 ¶ 5 (IB 1999).

[40] *In re Space Expl. Holdings, LLC*, Order and Authorization, 36 FCC Rcd 7995 ¶ 16 (2021) (hereinafter "*2021 SpaceX Order*") (internal quotations omitted).

[41] *In re Teledesic LLC*, Order and Authorization, 14 FCC Rcd 2261 ¶¶ 5-7 (IB 1999).

new interference risks.[42] In granting Teledesic's modification application, the Bureau found that Teledesic's proposed modification satisfied the public interest standard and did not require a processing round because the proposed modification did not present any significant interference problems, was otherwise consistent with Commission policies, and would allow Teledesic to take advantage of the latest technology.[43]

Similarly, in 2001, the International Bureau approved a modification application from Sirius Satellite Radio ("Sirius") without requiring Sirius to undergo a processing round.[44] Sirius, which was already authorized to operate two GEOs using certain spectrum, requested authorization to instead operate three NGSO satellites in that same spectrum.[45] The Commission granted Sirius' modification application without a processing round because it would "provide the public with an improved satellite DARS system that relies on fewer terrestrial repeaters and offers more channels within the existing spectrum allocation."[46] The Commission did not require a processing round there even though Sirius' application requested authority to use additional spectrum for TT&C.[47]

Like the modification applications filed by Sirius and Teledesic, this Modification Application *does not seek to change the amount or location of frequency to be used, does not increase interference to other users, and takes advantage of the latest technology.*[48]

---

[42] *Id*.

[43] *Id*.

[44] *In re Sirius Satellite Radio, Inc.,* Order and Authorization, 16 FCC Rcd 5419 (IB 2001).

[45] *Id.* ¶ 5.

[46] *Id.*

[47] Sirius sought to use the 4/6 GHz frequency band on a non-harmful interference basis for TT&C. *Id.*

[48] Moreover, this modification is less significant than those at issue in the *Sirius* and *Teledesic* orders in that the Commission already treats Ligado's SkyTerra-1 satellite as an "NGSO-like" satellite due to its use of omnidirectional antennas. *In re Mobile Satellite Ventures Subsidiary LLC*, Order and Authorization, 20 FCC Rcd 9752 ¶ 13 n.30 (2005).

Other factors further counsel that imposing processing round procedures on the instant Modification Application would not be in the public interest. The Commission recently affirmed that a "focus on the public interest in avoiding significant radiofrequency interference is consistent with the purpose of the Commission's processing round procedure."[49] The processing round procedure is "designed to establish the interference environment" in which licensees can expect to operate.[50] But in considering what the interference environment will be for the L-band, one must take into account an important and unique feature of this band: the requirement that a party (even one with a license in hand) successfully complete lengthy coordination discussions with all the relevant parties already licensed by national administrations and coordinated to operate in the L-band in ITU Region 2—existing operators from not only the United States, but Canada, Mexico, Russia, and the United Kingdom—before it can use spectrum in this band. Ligado spent over a decade and substantial resources coordinating use of the L-band with other licensees and governmental stakeholders, and thus is singularly qualified to use the band to offer MSS services in North America. Indeed, the proposed NGSO system payload for which authorization is being sought in this Modification Application has completed coordination. Permitting new entrants into the L-band through a processing round would be highly disruptive to this carefully negotiated and distinctive multi-national interference environment. This Modification Application will permit Ligado to add NGSO capabilities that will complement and be used in coordination with Ligado's current Sky-Terra 1 satellite. Conversely, permitting a third party to access the L-band could raise interference issues both with the proposed NGSO operations and the company's existing GSO system, as well as with other coordinated parties licensed to operate in this band.

[49] *2021 SpaceX Order* ¶ 16.

[50] *Id*.

Moreover, the prospect of a processing round could disincentivize investment and operations in the L-band, all for a service that would not become a reality for a very long time. Any new applicant for an L-band license would need to go through a costly and indeterminate years-long process to have access to any portion of L-band spectrum, during which time productive use of the band would likely be difficult or impossible. Fragmentation of the band also would create a significantly more complex interference environment for L-band licensees, potentially creating new limitations on operations within the band. That prospect could substantially delay the time to market for competitive mobile broadband NGSO services that this Modification Application would enable in the near term. Thus, a processing round would indefinitely harm (not foster) competition in the market for mobile broadband NGSO services. In that regard, and in line with the above, the Commission should consider the impact on the market for mobile broadband NGSO services and how quickly they are deployed and can provide service to consumers. That analysis points to the conclusion that a processing round would be counterproductive to the Commission's goals.

As such, under the public interest standard, Commission rules, and Commission precedents, this Modification Application should not be subject to a processing round. However, insofar as a processing round requirement would apply to this Modification Application, it should be waived as requested in the attached waiver requests.

V. ITU COST RECOVERY

In keeping with 47 C.F.R. § 25.111(d), Ligado is aware of and unconditionally accepts the responsibility to cover any and all fees charged by the ITU for filings made in connection with this Modification Application. Invoices for such fees may be sent to the contact specified in the Form 312 associated with this Modification Application.

CONCLUSION

For the foregoing reasons, and others set forth in the attached materials, the Commission should find that granting this space station license modification would serve the public interest, and issue a grant of the modification without delay.

Respectfully submitted,

/s/ Vernon Ross

Vernon Ross
Vice President, Legal and Regulatory Affairs

LIGADO NETWORKS LLC
10802 Parkridge Blvd.
Reston, VA 20191
(877) 678-2920

December 8, 2025

WAIVER REQUESTS

To the extent necessary, Ligado respectfully requests a waiver of Sections 25.156(d) and 25.157 of the Commission's rules concerning processing rounds, as well as any other rules that the Commission sees fit to waive to facilitate the purposes of this Modification Application. The Commission's rules may be waived for good cause shown,[1] and the Commission may exercise its discretion to waive a rule where relevant facts and circumstances make strict compliance inconsistent with the public interest.[2] The Commission may take into account considerations of hardship, equity, or more effective implementation of overall policy on an individual basis.[3] Waiver of the Commission's rules is appropriate where (i) special circumstances warrant a deviation from the general rule, and (ii) such deviation will serve the public interest.[4]

Under Sections 25.156(d) and 25.157 of the Commission's rules, new NGSO applications generally are subject to a "processing round" framework that subdivides spectrum between the initial applicant and follow-on applicants.[5] As discussed in the attached Modification Application, these rules themselves as well as the rationale behind the processing round framework do not apply to modifications such as this one that do not request access to new spectrum or pose new risks of interference. However, insofar as these rules are deemed to apply, Ligado respectfully requests a waiver of the rules which is in the public interest and necessary to effectuate the purposes of the Modification Application.

---

[1] 47 C.F.R. § 1.3.

[2] *Northeast Cellular Telephone Co. v. FCC*, 897 F.2d 1164, 1166 (D.C. Cir. 1990).

[3] *WAIT Radio v. FCC*, 418 F.2d 1153, 1159 (D.C. Cir. 1969); *Northeast Cellular*, 897 F.2d at 1166.

[4] *NetworkIP, LLC v. FCC*, 548 F.3d 116, 125-28 (D.C. Cir. 2008), *Northeast Cellular*, 897 F.2d at 1166.

[5] 47 C.F.R. §§ 25.156(d), 25.157.

The Commission has found good cause to waive the processing round requirements when the requested operations would use previously authorized spectrum or would not create new spectrum conflicts with other operators.[6] Indeed, in 2005, the Commission granted a waiver of the processing round requirements requested by MSV, Ligado's predecessor-in-interest, when MSV requested authority to launch and operate a satellite using previously authorized L-band spectrum.[7] The Commission held: "NGSO-like applications that seek to use the same frequencies for which that applicant is already licensed [will be] processe[d] . . . immediately without instituting a modified processing round."[8] This Modification Application presents similar circumstances. As discussed in the Modification Application, the proposed system will only use L-band spectrum to which Ligado already has exclusive coordinated access, and will not pose new interference risks to other operators.

As the Commission knows, the L-band is subject to a distinctive licensing framework that requires substantial coordination between operators. This longstanding model provides an L-band-specific mechanism for entry into the band, and a processing round approach simply would not be compatible with the L-band model. Ligado spent over a decade negotiating coordination agreements with other administrations (namely Canada, Mexico, the United Kingdom, and Russia) and other L-band operators (Inmarsat) and is uniquely positioned to rapidly operationalize the L-band spectrum to which it already has coordinated access. Any new applicant for an L-band license would need to go through this same years-long process to have

---

[6] *See, e.g.*, *In re Boeing Co.*, Order and Authorization, 36 FCC Rcd 16067 ¶¶ 20-22 (2021) (hereinafter "*Boeing Order*"); *In re Space Expl. Holdings, LLC*, Order and Authorization, DA 24-222, ¶¶ 12-13 (Mar. 8, 2024) (hereinafter "*2024 SpaceX Order*") at 5; *In re Audacy Corp.,* Order and Authorization, 33 FCC Rcd 5554 ¶¶ 27-28 (2018) (hereinafter *"Audacy Order"*).

[7] *In re Mobile Satellite Ventures Subsidiary LLC*, 20 FCC Rcd 479 ¶ 8 (2005) ("MSV Order").

[8] *Id.*

access to any portion of L-band spectrum, during which time productive use of the band would likely be difficult or impossible. As such, requiring a processing round would create unnecessary delay and stifle the innovative new technology that Ligado's Modification Application would enable.[9]

Waiving the processing round requirement will enable rapid deployment of this spectrum for the purposes described in the Modification Application, advancing the Commission's objective of enabling operators to use the latest technology to realize the public interest benefits of their spectrum.[10] As discussed in the Modification Application, the proposed SkyTerra Next system can be operational in the L-band in the near term with few technical or coordination-related barriers and thus provide meaningful additional competition in the market for NGSO mobile broadband services soon. Approval of the Modification Application and this waiver request presents an opportunity to inject further competition into that market, following SpaceX's recent purchase of EchoStar's S-band spectrum.[11] Moreover, Ligado's existing SkyTerra-1 GSO satellite, which operates in this spectrum and today serves millions of MSS devices, means GSO and NGSO satellites can be leveraged to offer consumers a robust and complementary MSS service. As it moves forward to operationalize the spectrum in

---

[9] Chairman Carr has emphasized the importance of ensuring the Commission's rules "do not stifle investment and innovation in the case of new satellite broadband services where the potential benefits are so great." FCC, Statement of Chairman Brendan Carr, *FCC to Review Spectrum Sharing Rules to Unleash Space Innovation* (Apr. 29, 2025), https://www.fcc.gov/document/fcc-review-spectrum-sharing-rules-unleash-space-innovation-0.

[10] *See, e.g.*, *In re Sirius Satellite Radio, Inc.*, Order and Authorization, 16 FCC Rcd 5419 ¶¶ 4-5 (IB 2001) (permitting modification of a GSO license to NGSO and noting that "it is the Commission's policy to permit licensees to modify satellite systems, when possible, to make design improvements," and "allow the licensee to take advantage of the latest technology in providing service to the public").

[11] *See* SpaceX, *The Future of Starlink Direct to Cell* (Sept. 8, 2025), https://www.spacex.com/updates#dtc-gen2-spectrum.

collaboration with AST SpaceMobile, Ligado will continue to uphold its L-band sharing commitments, and the new system will not pose any increased risks of harmful interference.

Put simply, a waiver of the Commission's processing round rules will help unlock the full potential of the L-band in the near term by enabling rapid deployment of the latest satellite technology across spectrum for which MSS-related coordination and interference issues have already been resolved. Ligado is uniquely positioned to put this spectrum to immediate use in collaboration with AST SpaceMobile, and it is critical that the Commission avoid the years of additional coordination that would be needed to accommodate fragmentation of Ligado's L-band frequencies across numerous operators who will not be as well positioned to bring it to market. A waiver will address the unique regulatory characteristics of the L-band and serve the processing round rules' underlying purpose of promoting "the public interest in avoiding significant radiofrequency interference" and "establish[ing] the interference environment" in which licensees operate by preserving existing coordination structures that serve as a launch pad for this opportunity.[12]

[12] *In re Space Expl. Holdings, LLC*, 36 FCC Rcd 7995 ¶ 16 (2021).

TECHNICAL SUPPLEMENT

Ligado Networks Subsidiary LLC, Debtor-in-Possession ("Ligado"), seeks authority to operate an L-band Mobile-Satellite Service ("MSS") payload ("SkyTerra Next," an L-band space station) hosted on the AST & Science, LLC ("AST SpaceMobile") non-geostationary satellite orbit ("NGSO") constellation that has been previously presented to the Commission.[1] A filing for SkyTerra Next will be submitted to the International Telecommunication Union ("ITU").

Ligado provides this Technical Supplement as an attachment to its Modification Application. Schedule S of Form 312 discloses the basic technical and operational parameters for the SkyTerra Next System following deployment, and purpose of this exhibit is to provide an overview of Ligado's SkyTerra Next System architecture and operations as required by the Commission's Part 25 rules.

I. SPACE SEGMENT DESCRIPTION

a. L-Band Space Station Configuration

SkyTerra Next will operate in:

- Transmission: 1525–1544 MHz and 1545-1559 MHz (space-to-Earth)
- Reception: 1626.5–1645.5 MHz and 1646.5-1660.5 MHz (Earth-to-space)

SkyTerra Next will consist of payloads aboard ninety-six (96) LEO satellites equipped with large phased-array antennas capable of forming multiple steerable beams. The system supports dynamic beam shaping, variable power control, and rapid reconfiguration to avoid or mitigate interference. Ligado will maintain control of the SkyTerra Next transmissions and will have the ability to execute a shutoff function to cease transmissions in these bands or parts of these bands in any or all beams.

The AST SpaceMobile NGSO satellites hosting SkyTerra Next will operate in a Low Earth Orbit constellation at an altitude of 690 kilometers, one satellite per orbital plane, 53 degrees inclination, with an orbital period of approximately 1 hour and 38 minutes. The Orbital Planes Right Ascension of the Ascending Node spacing will be 3.75 degrees. The SkyTerra Next system aboard the satellites will consist of direct radiating user link phased array, channelizer, and antennas. The beam footprints will be narrower than those from Ligado's current geostationary satellite platform, thus reducing unintended illumination of sensitive facilities and enhancing spectral isolation.

---

[1] *See* Call Sign S3065, ICFS File Nos. SAT-AMD-20250903-00248 (Sept. 3, 2025), SAT-AMD-20250718-00181 (Jul. 21, 2025), SAT-MOD-20250612-00145 (Jun. 12, 2025), SAT-AMD-20240311-00053 (Mar. 11, 2024), SAT-AMD-20230717-00172 (Jul. 17, 2023), SAT-AMD-20201028-00126 (Oct. 28, 2020), SAT-AMD-20200727-00088 (Jul. 27, 2020), SAT-LOA-20200413-00034 (Apr. 13, 2020). *In re AST & Science LLC,* Order and Authorization, DA 24-756 (SB 2024) (authorizing AST SpaceMobile's original five satellite NGSO constellation).

The TT&C-RF subsystem and feeder link will be provided by the AST SpaceMobile constellation authorized under the S3065 call sign, and these links will be shared with other payloads installed on the constellation.

The full orbital parameters for the SkyTerra Next are provided in the Schedule S associated with this Application.

II. COMPLIANCE WITH COMMISSION TECHNICAL RULES

The SkyTerra Next system will comply with all applicable FCC and ITU spectrum allocation rules, utilization policies, and technical requirements.

a. Conformity with § 25.202(e) Frequency Tolerance Requirements

SkyTerra Next's proposed operations will comply with 47 C.F.R. § 25.202(e) in the relevant frequencies under the Part 25 rules where applicable and as described in the accompanying Schedule S.

b. Conformity with § 25.202(f) Frequency Tolerance Requirements

The emissions will comply with the limits required by 47 C.F.R. § 25.202(f).

c. Conformity with § 25.207 Cessation of Emissions

The SkyTerra Next space stations will meet the requirement in 47 C.F.R. § 25.207 that they be capable of ceasing radio emissions by the use of appropriate devices. SkyTerra Next is designed to ensure definite cessation of the emissions by ground telecommand.

d. Conformity with § 25.273 Duties Regarding Space Communications Transmissions

All transmissions to space stations in the SkyTerra Next network will be subject to earth stations registration in the network. Only authorized users will be allowed to transmit.

The risk of generating harmful interference to the authorized transmissions of another licensee is minimized by the fact that only FCC type approved equipment will be used. All relevant information demonstrating how earth station transmissions will not cause harmful interference to other users has been submitted to the Commission as part of Ligado's prior approved blanket earth station licenses.[2]

Ligado Networks will maintain complete and accurate technical details of current and planned transmissions over SkyTerra Next, and will require authorized users on SkyTerra Next, whether by tariff or contract, to provide any necessary technical information in this regard including that required by 47 C.F.R. § 25.272.

[2] *See* Call Signs E930367 and E980179.

Ligado commits to exchanging relevant general technical information concerning current and planned transmission parameters with other space stations licensees and to work with them to identify and promptly resolve any potential cases of unacceptable interference between satellite systems.

e. Conformity with § 25.274 Procedures to be Followed in the Event of Harmful Interference

Ligado Networks commits, in the event of harmful interference, to follow the procedures specified in 47 C.F.R. § 25.274.

f. Conformity with § 25.287 Requirements Pertaining to Operation of Mobile Stations in the NVNG, 1.5/1.6 GHz, 1.6/2.4 GHz, and 2 GHz Mobile-Satellite Service Bands

Ligado Networks commits to complying with the requirements of 47 C.F.R. § 25.287.

I hereby certify that I am the technically qualified person responsible for preparation of the engineering information contained in this application, that I am familiar with Part 25 of the Commission's rules, that I have either prepared or reviewed the engineering information submitted in this application, and that it is complete and accurate to the best of my knowledge and belief.

/s/ *Sachin Chhibber*
Sachin Chhibber
Chief Technology Officer
Ligado Networks

December 8, 2025

Responses to Question No. 39 (Ownership)

Question 39 – Officers, Directors, and Ten Percent or Greater Shareholders

Ligado Networks Subsidiary LLC, Debtor-in-Possession is a wholly owned subsidiary of Ligado Networks LLC, Debtor-in-Possession, which is controlled by its board of managers. Ligado Networks LLC, Debtor-in-Possession's board of managers consists of managers appointed by certain of its investors and independent managers. These managers are as follows:

Name	Address	Citizenship
Alfred F. Hurley, Jr.	10802 Parkridge Blvd Reston, VA 20191	U.S.
Timothy M. Donahue	10802 Parkridge Blvd Reston, VA 20191	U.S.
Paul Aronzon	10802 Parkridge Blvd Reston, VA 20191	U.S.
Ivan G. Seidenberg	10802 Parkridge Blvd Reston, VA 20191	U.S.
Janice M. Hamby	10802 Parkridge Blvd Reston, VA 20191	U.S.
Charles F. Bolden Jr.	10802 Parkridge Blvd Reston, VA 20191	U.S.
Reed E. Hundt	10802 Parkridge Blvd Reston, VA 20191	U.S.
Lawrence Babbio	10802 Parkridge Blvd Reston, VA 20191	U.S.
Doug Smith	10802 Parkridge Blvd Reston, VA 20191	U.S.

The following individuals are officers of Ligado Networks LLC, Debtor-in-Possession:

Name	Address	Citizenship
Doug Smith President & Chief Executive Officer	10802 Parkridge Blvd Reston, VA 20191	U.S.
Eric Harrington Chief Financial Officer	10802 Parkridge Blvd Reston, VA 20191	U.S.
Vicky McPherson General Counsel	10802 Parkridge Blvd Reston, VA 20191	U.S.
Sachin Chhibber Chief Network & Technology Officer	10802 Parkridge Blvd Reston, VA 20191	U.S.
Scott Wiener Chief Marketing & Strategy Officer	10802 Parkridge Blvd Reston, VA 20191	U.S.
Chris Lobecker	10802 Parkridge Blvd	U.S.

Name	Address	Citizenship
Senior Vice President, Strategy & Planning	Reston, VA 20191	
Brendan Boughton Senior Vice President, Finance & Treasurer	10802 Parkridge Blvd Reston, VA 20191	U.S.
Brian Deobald Senior Vice President, Strategic Product & Corporate	10802 Parkridge Blvd Reston, VA 20191	U.S.

The current ownership of Ligado Networks Subsidiary LLC, Debtor-in-Possession, the applicant, is as follows:

1. Ligado Networks Subsidiary LLC, Debtor-in-Possession, the applicant, is a Delaware limited liability company.

2. Ligado Networks Subsidiary LLC, Debtor-in-Possession is a wholly owned subsidiary of Ligado Networks LLC, Debtor-in-Possession, a Delaware limited liability company. Ownership in Ligado Networks LLC, Debtor-in-Possession is held through two separate classes of membership units: Common Units and Preferred Units. Both classes of membership units represent equity units, but the equity interests represented by Common and Preferred Units will vary depending on the value of Ligado Networks LLC, Debtor-in-Possession and how it is attributed between the Common and Preferred Units. As a result, each equity interest in Ligado is most accurately expressed as a range. One end of the range is based on an assumption that the Common Units represent 100% of the value of Ligado Networks LLC, Debtor-in-Possession and the other end of the range is based on an assumption that the Preferred Units represent 100% of the value of Ligado Networks LLC, Debtor-in-Possession. This approach, which covers all possible relative values, previously has been accepted by the Commission as the appropriate approach for reporting equity interests in Ligado.[1]

   Equity Interests

   The following entities hold a 10 percent or greater equity interest in Ligado Networks LLC, Debtor-in-Possession, based on the best-available information received from Ligado's investors:

[1] *See In re Applications of LightSquared Subsidiary LLC, Debtor-in-Possession, and LightSquared Subsidiary LLC*, Memorandum Opinion and Order and Declaratory Ruling, 30 FCC Rcd 13988, 13990–91 ¶ 7 n.20, 13997–98 ¶ 20 n.70 (2015).

a. HGW US Holding Company, L.P. holds an approximate equity interest in Ligado Networks LLC, Debtor-in-Possession of between 5.62 (Preferred) – 42.51 (Common) percent.[2]

    i. HGW US Holding Company, L.P., a Delaware limited partnership, is controlled by HGW GP, Ltd., a Cayman Islands exempted company.

    ii. HGW Holding Company, L.P., a Cayman Islands exempted limited partnership, holds approximately a 95.8 percent equity interest in HGW US Holding Company, L.P. as a limited partner. It therefore holds an approximate equity interest in Ligado Networks LLC, Debtor-in-Possession of between 5.38 (Preferred) – 40.72 (Common) percent.

        1. Harbinger Capital Partners Master Fund I, Ltd., a Cayman Islands exempted company, holds approximately a 70.1% equity interest in HGW Holding Company, L.P. as a limited partner. It therefore holds an approximate equity interest in Ligado Networks LLC, Debtor-in-Possession of between 3.77 (Preferred) – 28.54 (Common) percent.

            a. Harbinger Capital Partners Intermediate Fund I, Ltd., a Cayman Islands exempted company, holds approximately a 50.83% equity and voting interest in Harbinger Capital Partners Master Fund I, Ltd. It therefore holds an approximate attributable equity interest in Ligado Networks LLC, Debtor-in-Possession of between 3.77 (Preferred) – 28.54 (Common) percent.

            b. Harbinger Capital Partners Offshore Fund I, Ltd., a Cayman Islands exempted company, holds approximately a 77.14% equity and voting interest in Harbinger Capital Partners Intermediate Fund I, Ltd. It therefore holds an approximate equity interest in Ligado Networks LLC, Debtor-in-Possession of between 3.77 (Preferred) – 28.54 (Common) percent.

        2. Harbinger Capital Partners Special Situations Fund, L.P., A Delaware limited partnership, holds approximately a 25% equity ownership interest in HGW Holding Company, L.P. It therefore

[2] Detailed information on HGW US Holding Company, L.P. and its corporate affiliates (collectively, "Harbinger") is available in the Commission's December 2015 Declaratory Ruling permitting the aggregate foreign ownership of Ligado Networks LLC, Debtor-in-Possession to exceed 25 percent and granting specific approval to certain Harbinger entities. *See id.* at 14003 ¶ 29. Ligado Networks Subsidiary LLC, Debtor-in-Possession and Ligado Networks LLC, Debtor-in-Possession incorporate this information by reference.

holds an approximate equity interest in Ligado Networks LLC, Debtor-in-Possession of between 1.34 (Preferred) – 10.18 (Common) percent.

b. Investment funds managed by Fortress Investment Group LLC, a Delaware limited liability company ("FIG," and, together with all its controlled affiliates, "Fortress") collectively hold an approximate equity interest in Ligado Networks LLC, Debtor-in-Possession of between 26.20 (Common) – 28.21 (Preferred) percent. These interests are subject to a Voting Proxy Agreement previously approved by the Commission.[3] Under this Agreement, Fortress' Voting Proxy, Alfred F. Hurley, Jr., a U.S. person, exercises all rights conferred by Fortress interests in Ligado.

    i. LSQ Acquisition Co LLC, a Delaware limited liability company, holds an approximate equity interest in Ligado Networks LLC, Debtor-in-Possession of between 26.20 (Common) – 25.12 (Preferred) percent. The address of LSQ Acquisition Co LLC is 1345 Avenue of the Americas, 46th Fl, New York, NY, 10105.

        1. LSQ Acquisition Co. UST LLC, a Delaware limited liability company, holds a 50.4% equity interest in LSQ Acquisition Co LLC. It therefore holds an approximate equity interest in Ligado Networks LLC, Debtor-in-Possession of between 26.20 (Common) – 25.12 (Preferred) percent. The address of LSQ Acquisition Co. UST LLC is 1345 Avenue of the Americas, 46th Fl, New York, NY, 10105.

    ii. CF LSQ C Holdings LLC, a Delaware limited liability company, holds an approximate equity interest in Ligado Networks LLC, Debtor-in-Possession of between 0 (Common) – 3.09 (Preferred) percent. The address of CF LSQ C Holdings LLC is 1345 Avenue of the Americas, 46th Fl, New York, NY, 10105.

c. Cerberus Ligado Holdings LLC, a Delaware limited liability company, holds an approximate equity interest in Ligado Networks LLC, Debtor-in-Possession of between 8.10 (Common) – 23.59 (Preferred) percent. The address of Cerberus Ligado Holdings LLC is 875 Third Avenue, New York, NY 10022.

    i. Cerberus Ligado Holdings LLC is controlled by Cerberus Capital Management II, L.P., a Delaware limited partnership. The address of Cerberus Capital Management II, L.P. is 875 Third Avenue, New York, NY 10022.

[3] *See* Letter from Ethan Lucarelli, Chief, Office of International Affairs, to Doug Smith, President and CEO, Ligado Networks LLC, DA 23-1199 (OIA Dec. 22, 2023).

ii. Cerberus Capital Management II, L.P. is controlled by Craig Court GP, LLC, a Delaware limited liability company. The address of Craig Court GP, LLC is 875 Third Avenue, New York, NY 10022.

iii. Craig Court GP, LLC is owned and controlled by Craig Court, Inc., a New York corporation. The address of Craig Court, Inc. is 875 Third Avenue, New York, NY 10022.

iv. Craig Court, Inc. is owned and controlled by the Stephen A. Feinberg 2025 Family Trust, a Virginia trust. The trustees for the Stephen A. Feinberg 2025 Family Trust are Adam S. Waldenberg, a U.S. person, and Michael S. Hisler, a U.S. person.

d. Entities that Ligado understands are under the ultimate ownership of Great Elm Group, Inc., a publicly traded Delaware corporation, collectively hold an approximate equity interest in Ligado Networks LLC, Debtor-in-Possession of between 0 (Preferred) – 21.25 (Common) percent. Great Elm Group, Inc. is a publicly traded U.S. corporation. The address of Great Elm Group, Inc., is 3801 PGA Boulevard, Suite 603, Palm Beach Gardens, FL 33410.

e. Credit Markets Holdings, LLC, a Delaware limited liability company and indirect subsidiary of JPMorgan Chase & Co. (collectively, "JP Morgan"), holds an approximate equity interest in Ligado Networks LLC, Debtor-in-Possession of between 0 (Common) – 13.68 (Preferred) percent. The address of Credit Market Holdings, LLC is 4 Chase MetroTech Center, 15th Floor, Brooklyn, Kings, NY, 11245, United States.

i. Credit Market Holdings, LLC is owned and controlled by J.P. Morgan Broker-Dealer Holdings Inc., a Delaware Corporation. The address of J.P. Morgan Broker-Dealer Holdings Inc. is 4 Chase Metrotech Center, 4th Floor, Brooklyn, Kings, NY, 11245, United States.

ii. J.P. Morgan Broker-Dealer Holdings Inc. is owned and controlled by JPMorgan Chase Holdings LLC, a Delaware limited liability company. The address of JPMorgan Chase Holdings LLC is 383 Madison Avenue, New York, New York, NY, 10179, United States.

iii. JPMorgan Chase Holdings LLC is owned and controlled by JPMorgan Chase & Co., a publicly traded Delaware corporation. The address of JPMorgan Chase & Co. is 383 Madison Avenue, New York, New York, NY, 10179, United States.

Voting Interests

As noted above, Ligado Networks LLC, Debtor-in-Possession is controlled by its board, certain members of which are appointed by investors identified above (collectively, the

"Appointed Managers"). The voting interests in Ligado Networks LLC, Debtor-in-Possession reflect the relative voting power of each such investor in Ligado Networks LLC, Debtor-in-Possession based on that investor's right to appoint board managers.[4] Currently, there are two Appointed Managers, each of whom has two votes on all matters before the board. The remaining seven board members consist of six elected board managers and Ligado's CEO (collectively, the "Independent Managers"). Independent Managers have one vote on all matters before the board. This gives the Independent Managers collective control of 7/11 board votes (~63.63%). However, the Independent Managers do not have any agreement amongst themselves for the management and control of Ligado – they vote independently.

Currently, only one voting interest in Ligado is equal to or exceeds 10 percent: Fortress' Voting Proxy (4/11 board votes; ~36.36%).[5]

Based on the best-available information received from Ligado's investors, no other individuals or entities hold an equity or voting interest in Ligado (and thus Ligado Networks Subsidiary LLC, Debtor-in-Possession) that equals or exceeds 10 percent.

[4] Historically, ownership of Common Units, which confer certain consent rights and investor protections, were reported both as equity and voting interests. Because Ligado is controlled by its board, voting interests in Ligado are more accurately represented by the relative voting power of each investor based on that investor's right to appoint board managers. In any case, the above list identifies the investors that hold ownership of Common Units equal to or exceeding 10 percent of this class of membership units.

[5] Cerberus is entitled to appoint an Appointed Manager but has waived this right, and its seat has been filled by an Independent Manager. The Cerberus waiver is revocable any time. JP Morgan has permanently relinquished its right to appoint an Appointed Manager. If Cerberus were to retake its board appointment right, the respective voting interests of other investors would change, as the total number of board votes would increase by one.

December 8, 2025

By Electronic Filing

Marlene H. Dortch
Secretary
Federal Communications Commission
45 L Street, NE
Washington, D.C. 20054

Re: Application for Modification of Space Station License of Ligado Networks Subsidiary LLC (Call Sign SAT-MOD-_____)

Dear Ms. Dortch:

AST & Science, LLC ("AST SpaceMobile") submits this letter in support of the above-referenced application for authority to add, launch, and operate an L-band Mobile Satellite Service payload in North America aboard AST SpaceMobile's proposed non-geostationary satellite orbit satellite system.

AST SpaceMobile looks forward to partnering with Ligado to use this L-band MSS spectrum to provide space-based mobile broadband connectivity to U.S. subscribers using their existing, unmodified mobile devices. AST SpaceMobile looks forward to working with the Commission and Ligado to ensure full and efficient use of this L-band spectrum and enable space-based mobile broadband services across the United States and North America.

Please direct any questions about this letter to the undersigned.

Respectfully submitted,

By: */s/ Jennifer A. Manner*

Jennifer A. Manner
Senior Vice President, Regulatory Affairs and International Strategy
Jennifer.manner@ast-science.com
+1-301-775-1449

SAT-MOD-20251206-00374

Your application has been successfully submitted.

Applicant Name	Submission ID	File Number	Submission Date & Time
Ligado Networks Subsidiary LLC, Debtor-in-Possession	IC2025004623	SAT-MOD-20251206-00374	December 8, 2025, 12:05:22:522 PM

Application Summary Page(s):

SAT-MOD-20251206-00374

FCC Form 312

FEDERAL COMMUNICATIONS COMMISSION

Application for Earth Station: MOD - Main Form

FOR OFFICIAL USE ONLY

Approved by OMB No. 3060-0678
Estimated time per response: 0.5-80 hours
Edition date: August 2024

See Instructions Print Form

Applicant Information (Q1 - 16)

Applicant

Enter a description of this application to identify it on the main menu:

Ligado Application for Modification of Space Station S2358

FRN

0005883996

Name

Ligado Networks Subsidiary LLC, Debtor-in-Possession

Doing Business As (DBA)

Street Address

10802 Parkridge Blvd

Street Address 2

City

Reston

State

VA

Zip Code/Postal Code

20191

Country

United States of America

Attention

Vernon Ross

Title

VP, Legal and Regulatory Affairs

Phone

8776782920

Fax

Email

legal@ligado.com

☐ Contact Same as Applicant

Contact

FRN

Name

Covington & Burling LLP

Doing Business As (DBA)

Street Address

One CityCenter 850 Tenth Street, NW

Street Address 2

City

Washington

State

DC

Zip Code/Postal Code

20001

Country

United States of America

Attention

Gerard J. Waldron

Title

Phone

+12026625360

Fax

+12027785360

Email

gwaldron@cov.com

Relationship

Legal Counsel

Classification of Filing

17a. Select the appropriate classification of application from the drop-down menu below:

b4. Modification of License or Registration

Application Fees

17b. Will a fee be paid?

(•) Yes ( ) No

17c. If yes, select the appropriate fee code for the application.

FAG

17d. Fee Classification B

Fee Amount

$2,930

Waivers

18a. Does the Applicant request a waiver(s) of the Commission's rules?

(•) Yes ( ) No

18b. Identify the rule section(s) for which a waiver is sought from the below.

Ligado requests waiver of rules 25.156(d) and 25.157 if deemed necessary by the Commission.

18c. Waiver Request Documentation

*

19a. If this filing is an amendment to a pending application, enter date pending application was filed:

2015-12-31

19b. If this filing is an amendment to a pending application, enter file number of pending application:

SAT-MOD-20151231-00091

Type of Service

20. NATURE OF SERVICE: This filing is for an authorization to provide or use the following type(s) of service(s): Select all that apply.

Mobile-Satellite Service | Other Satellite Service (please specify)

20n. Other

ATC

21. Status

( ) Common Carrier (•) Non-Common Carrier ( ) N/A

22. Select all that apply from the drop-down below:

U.S. Licensed Satellites

23. If Applicant is providing INTERNATIONAL COMMON CARRIER service, see instructions regarding Sec. 214 filing. Are these facilities:

( ) Connected to the Public Switched Network ( ) Not Connected to the Public Switched Network (•) N/A

24. FREQUENCY BAND(S): Select the box(es) next to all applicable frequency band(s).

Check all that apply

- [ ] 24a. VHF-Band (30-300 MHz)
- [ ] 24b. UHF-Band (300-1000 MHz)
- [ ] 24c. L-Band (1-2 GHz)
- [ ] 24d. S-Band (2-3 GHz)
- [ ] 24e. C-Band (3.5-8 GHz)
- [ ] 24f. X-Band (8-10 GHz)
- [ ] 24g. Ku-Band (10-14.5 GHz)
- [ ] 24h. Ka-Band (17-30 GHz)
- [ ] 24i. Q/V-Band (35-75 GHz)
- [ ] 24j. Other Frequency Band

Type of Station

25a. CLASS OF STATION: Select the Class of Station/Orbit Type

Non-Geostationary Space Station

25b. Estimated Operational Lifetime of Space Station(s) From Date of Launch (years)

15

25c. Space Station or Satellite Network Name

SkyTerra Next

25d. Does the applicant intend to use a non-U.S. licensed satellite to provide service in the United States?

( ) Yes (•) No

If Yes, attach an exhibit providing the information specified in 47 C.F.R. 25.137, as appropriate.

*

25e. What administration has licensed or is in the process of licensing the space station? If no license will be issued, what administration has coordinated or is in the process of coordinating the space station?

26. Type of Earth Station

○ Transmit/Receive ○ Transmit-only ○ Receive-only

Purpose of Modification

27. The purpose of this proposed modification or amendment is to:

Check all that apply

- ☐ 27a. Authorization to add new emission designator and related service
- ☐ 27b. Authorization to change emission designator and related service
- ☐ 27c. Authorization to increase EIRP and EIRP density
- ☐ 27d. Authorization to replace antenna
- ☐ 27e. Authorization to add antenna
- ☐ 27f. Authorization to relocate fixed station
- ☐ 27g. Authorization to change assigned frequency(ies)
- ☐ 27h. Add frequencies
- ☐ 27i. Authorization to add Points of Communication
- ☐ 27j. Authorization to change Points of Communication
- ☐ 27k. Authorization for facilities for which environmental assessment and radiation hazard reporting is required
- ☐ 27l. Authorization to change orbit location
- ☐ 27m. Authorization to perform fleet management
- ☐ 27n. Authorization to extend milestones
- ☐ 27o. Other

27o. Other (Specify)

See attached

Environmental Policy

28a. Would a Commission grant of any proposal in this application or amendment have a significant environmental impact as defined by 47 CFR 1.1307?

○ Yes ◉ No ○ N/A

If YES, submit the statement as required by Sections 1.1308 and 1.1311 of the Commission's rules, 47 CFR §§ 1.1308 and 1.1311, as an exhibit to this application.

*

Alien Ownership

29. Is the Applicant a foreign government or the representative of any foreign government?

○ Yes ◉ No

30. Is the Applicant an alien or the representative of an alien?

○ Yes ○ No ◉ N/A

31. Is the Applicant a corporation organized under the laws of any foreign government?

○ Yes ○ No ◉ N/A

32. Is the applicant a corporation of which more than one-fifth of the capital stock is owned of record or voted by aliens or their representatives or by a foreign government or representative thereof or by any corporation organized under the laws of a foreign country?

○ Yes ○ No ◉ N/A

33. Is the applicant a corporation directly or indirectly controlled by any other corporation of which more than one−fourth of the capital stock is owned of record or voted by aliens, their representatives, or by a foreign government or representative thereof or by any corporation organized under the laws of a foreign country?

○ Yes ○ No ◉ N/A

34. If any answer to questions 29, 30, 31, 32 and/or 33 is Yes, attach as an exhibit an identification of the aliens or foreign entities, their nationality, their relationship to the Applicant, and the percentage of stock they own or vote.

*

Basic Qualifications

35. Has the applicant or any party to this application or amendment had any FCC station authorization or license revoked or had any application for an initial, modification or renewal of FCC station authorization, license, or construction permit denied by the Commission?

○ Yes ◉ No

36. Has the Applicant, or any party to this Application or amendment, or any party directly or indirectly controlling the Applicant ever been convicted of a felony by any state or federal court?

○ Yes ◉ No

37. Has any court finally adjudged the applicant, or any person directly or indirectly controlling the applicant, guilty of unlawfully monopolizing or attempting unlawfully to monopolize radio communication, directly or indirectly, through control of manufacture or sale of radio apparatus, exclusive traffic arrangement or any other means or unfair methods of competition?

○ Yes ◉ No

38. Is the Applicant, or any person directly or indirectly controlling the Applicant, currently a party in any pending matter referred to in the preceding two items?

○ Yes ◉ No

39. If the applicant is a corporation and is applying for a space station license, attach as an exhibit the names, address, and citizenship of those stockholders owning a record and/or voting 10 percent or more of the Filer's voting stock and the percentages so held. In the case of fiduciary control, indicate the beneficiary(ies) or class of beneficiaries. Also list the names and addresses of the officers and directors of the Filer.

*

☐ 40. Anti-drug

- The Applicant certifies that neither it nor any other party to the application is subject to a denial of Federal benefits, including FCC benefits, pursuant to section 5301 of the Anti-Drug Abuse Act of 1988, 21 U.S.C. § 862, because of a conviction for possession or distribution of a controlled substance. *See* 47 CFR § 1.2002(b) for the meaning of "party of application" for these purposes. This certification does not apply to applications filed in services exempted under § 1.2002(c) of the rules, or to Federal State or local governmental entities or subdivisions thereof. *See* 47 CFR § 1.2002(c).
- The Applicant certifies that all of its statements made in this Application and in the attachments or documents incorporated by reference are material, are part of this Application, and are true, complete, correct, and made in good faith.

41. Application Description

Ligado currently operates the SkyTerra-1 satellite at 101.3° W.L. This modification expands Ligado's authorization by allowing it to deploy and operate an MSS system aboard AST's constellation of NGSO LEO satellites without changing its ATC authority.

42. Geographic service certification

- (A) By selecting A, the undersigned certifies that the applicant is not subject to the geographic service or geographic coverage requirements specified in 47 C.F.R. Part 25.
- (B) By Selecting B, the undersigned certifies that the applicant is subject to the geographic service or geographic coverage requirements specified in 47 C.F.R. Part 25 and will comply with such requirements.
- (C) By selecting C, the undersigned certifies that the applicant is subject to the geographic service or geographic coverage requirements specified in 47 C.F.R. Part 25 and will not comply with such requirements because it is not feasible as a technical matter to do so, or that, while technically feasible, such services would require so many compromises in satellite design and operation as to make it economically unreasonable. A narrative description and technical analysis demonstrating this claim are attached.

Attachments/Confidential Treatment of Attachments

43. Is the Applicant requesting confidential treatment of an attachment(s) under section 0.459 of the Commission's rules?

Yes No

Attachment No.	File Name	Description of Attachment	Confidential
1	Ownership Information.pdf	Responses to Question No. 39 (Ownership)	
2	AST Letter.pdf	AST Support Letter	
3	Technical Supplement.pdf	Technical Supplement	
4	Waiver Requests.pdf	Waiver Requests	
5	Narrative.pdf	Narrative	

Certification

The Applicant waives any claim to the use of any particular frequency or of the electromagnetic spectrum as against the regulatory power of the United States because of the previous use of the same, whether by license or otherwise, and requests an authorization in accordance with this application. The applicant certifies that grant of this application would not cause the applicant to be in violation of the spectrum aggregation limit in 47 CFR Part 20. All statements made in exhibits are a material part hereof and are incorporated herein as if set out in full in this application. The undersigned, individually and for the applicant, hereby certifies that all statements made in this application and in all attached exhibits are true, complete and correct to the best of his or her knowledge and belief, and are made in good faith.

44. Party Authorized to Sign

First Name: Vernon

MI:

Last Name: Ross

Suffix:

Title: VP, Legal and Regulatory Affiars

Signature: Vernon Ross

Date: 2025-12-08

FAILURE TO SIGN THIS FORM MAY RESULT IN DISMISSAL
OF THE APPLICATION AND FORFEITURE OF ANY FEES PAID

WILLFUL FALSE STATEMENTS MADE ON THIS FORM ARE PUNISHABLE
BY FINE AND/OR IMPRISONMENT (U.S. Code, Title 18, Section 1001),
AND/OR REVOCATION OF ANY STATION LICENSE OR CONSTRUCTION PERMIT
(U.S. Code, Title 47, Section 312(a)), AND/OR FORFEITURE (U.S. Code, Title 47, Section 503)

Allow Internal Users to View Draft if in Draft State

SATELLITE SPACE STATION AUTHORIZATIONS
FCC Form 312 - Schedule S: (Technical and Operational Description)
FOR OFFICIAL USE ONLY

Approved by OMB No. 3060-0678
Estimated time per response: 4-80 hours
Edition date: October 2020

File Number: **DRAFT-SAT-MOD-20251206-00374**

Call Sign: **S2358**

S1. Satellite Information

a. Space Station or Satellite Network Name	b. Orbit Type	c. Estimated Operational Lifetime of Space Station(s) From Date of Launch (yrs)	d. Will the space station(s) operate on a Common Carrier basis?	e. Application Description
SkyTerra Next	Non-Geostationary (NGSO)	15	No	Ligado currently operates the SkyTerra-1 satellite at 101.3° W.L. This modification expands Ligado's authorization by allowing it to deploy and operate an MSS system aboard AST's constellation of NGSO LEO satellites without changing its ATC authority.

S2. Operating Frequency Bands

a. Type of Service	b. If a. is Other, provide a service description	c. Satellite Frequency Band (MHz)	d. Satellite Frequency (Lower Band Edge) (MHz)	e. Satellite Frequency (Upper Band Edge) (MHz)	f. Direction of Transmission	g. Non Conforming Indicator
1.5/1.6 GHz MSS		Other	1525	1544	Space-to-Earth (Transmit)	No
1.5/1.6 GHz MSS		Other	1646.5	1660.5	Earth-to-Space (Receive)	Yes
1.5/1.6 GHz MSS		Other	1626.5	1645.5	Earth-to-Space (Receive)	No
1.5/1.6 GHz MSS		Other	1545	1559	Space-to-Earth (Transmit)	Yes

S3. NGSO Orbital Information

a. Total Number of Simultaneously Operating Satellites in Constellation	b. Total Number of Satellites Deployed During the License Term	c. Orbit Epoch Date	d. Celestial Reference Body	e. If d. is "Other", provide the name of celestial body being referenced	f. Total Number of Orbital Planes
96	96	2026-01-01	Earth		96

g. Orbital Plane Information

(i) Orbital Plane No.	(ii) Number of Satellites in Plane	(iii) Inclination Angle (°)	(iv) Inclination Angle Tolerance (+/- °)	(v) Orbital Period (seconds)	(vi) Apogee (km)	(vii) Apogee Tolerance (+/- km)	(viii) Perigee (km)	(ix) Perigee Tolerance (+/- km)	(x) Argument of Perigee (°)	(xi) Right Ascension of Ascending Node (°)	(xii) Right Ascension of Ascending Node Tolerance (+/- °)	(xiii) Active Service Arc Begin Angle with Respect to Ascending Node (°)	(xiv) Active Service Arc End Angle with Respect to Ascending Node (°)	(xv) Is additional info on the active service arc provided in the application?	(xvi) Satellite Spacing	(xvii) Phase Angle Spacing (°)	(xviii) First Satellite Initial Phase Angle (°)	(xix) Maximum Orbital Eccentricity
1	1	53	2	5,905	690	70	690	70	90	1.87	3	-55	55	Yes	Evenly-Spaced	360	0	

2	1	53	2	5,905	690	70	690	70	90	5.62	3	-55	55	Yes	Evenly-Spaced	360	48.75	
3	1	53	2	5,905	690	70	690	70	90	9.37	3	-55	55	Yes	Evenly-Spaced	360	97.5	
4	1	53	2	5,905	690	70	690	70	90	13.12	3	-55	55	Yes	Evenly-Spaced	360	146.25	
5	1	53	2	5,905	690	70	690	70	90	16.87	3	-55	55	Yes	Evenly-Spaced	360	195	
6	1	53	2	5,905	690	70	690	70	90	20.62	3	-55	55	Yes	Evenly-Spaced	360	243.75	
7	1	53	2	5,905	690	70	690	70	90	24.37	3	-55	55	Yes	Evenly-Spaced	360	292.5	
8	1	53	2	5,905	690	70	690	70	90	28.12	3	-55	55	Yes	Evenly-Spaced	360	341.25	
9	1	53	2	5,905	690	70	690	70	90	31.87	3	-55	55	Yes	Evenly-Spaced	360	30	
10	1	53	2	5,905	690	70	690	70	90	35.62	3	-55	55	Yes	Evenly-Spaced	360	78.75	
11	1	53	2	5,905	690	70	690	70	90	39.37	3	-55	55	Yes	Evenly-Spaced	360	127.5	
12	1	53	2	5,905	690	70	690	70	90	43.12	3	-55	55	Yes	Evenly-Spaced	360	176.25	
13	1	53	2	5,905	690	70	690	70	90	46.87	3	-55	55	Yes	Evenly-Spaced	360	225	
14	1	53	2	5,905	690	70	690	70	90	50.62	3	-55	55	Yes	Evenly-Spaced	360	273.75	
15	1	53	2	5,905	690	70	690	70	90	54.37	3	-55	55	Yes	Evenly-Spaced	360	322.5	
16	1	53	2	5,905	690	70	690	70	90	58.12	3	-55	55	Yes	Evenly-Spaced	360	11.25	
17	1	53	2	5,905	690	70	690	70	90	61.87	3	-55	55	Yes	Evenly-Spaced	360	60	
18	1	53	2	5,905	690	70	690	70	90	65.62	3	-55	55	Yes	Evenly-Spaced	360	108.75	
19	1	53	2	5,905	690	70	690	70	90	69.37	3	-55	55	Yes	Evenly-Spaced	360	157.5	
20	1	53	2	5,905	690	70	690	70	90	73.12	3	-55	55	Yes	Evenly-Spaced	360	206.25	
21	1	53	2	5,905	690	70	690	70	90	76.87	3	-55	55	Yes	Evenly-Spaced	360	255	
22	1	53	2	5,905	690	70	690	70	90	80.62	3	-55	55	Yes	Evenly-Spaced	360	303.75	
23	1	53	2	5,905	690	70	690	70	90	84.37	3	-55	55	Yes	Evenly-Spaced	360	352.5	
24	1	53	2	5,905	690	70	690	70	90	88.12	3	-55	55	Yes	Evenly-Spaced	360	41.25	
25	1	53	2	5,905	690	70	690	70	90	91.87	3	-55	55	Yes	Evenly-Spaced	360	90	

26	1	53	2	5,905	690	70	690	70	90	95.62	3	-55	55	Yes	Evenly-Spaced	360	138.75	
27	1	53	2	5,905	690	70	690	70	90	99.37	3	-55	55	Yes	Evenly-Spaced	360	187.5	
28	1	53	2	5,905	690	70	690	70	90	103.12	3	-55	55	Yes	Evenly-Spaced	360	236.25	
29	1	53	2	5,905	690	70	690	70	90	106.87	3	-55	55	Yes	Evenly-Spaced	360	285	
30	1	53	2	5,905	690	70	690	70	90	110.62	3	-55	55	Yes	Evenly-Spaced	360	333.75	
31	1	53	2	5,905	690	70	690	70	90	114.37	3	-55	55	Yes	Evenly-Spaced	360	22.5	
32	1	53	2	5,905	690	70	690	70	90	118.12	3	-55	55	Yes	Evenly-Spaced	360	71.25	
33	1	53	2	5,905	690	70	690	70	90	121.87	3	-55	55	Yes	Evenly-Spaced	360	120	
34	1	53	2	5,905	690	70	690	70	90	125.62	3	-55	55	Yes	Evenly-Spaced	360	168.75	
35	1	53	2	5,905	690	70	690	70	90	129.37	3	-55	55	Yes	Evenly-Spaced	360	217.5	
36	1	53	2	5,905	690	70	690	70	90	133.12	3	-55	55	Yes	Evenly-Spaced	360	266.25	
37	1	53	2	5,905	690	70	690	70	90	136.87	3	-55	55	Yes	Evenly-Spaced	360	315	
38	1	53	2	5,905	690	70	690	70	90	140.62	3	-55	55	Yes	Evenly-Spaced	360	3.75	
39	1	53	2	5,905	690	70	690	70	90	144.37	3	-55	55	Yes	Evenly-Spaced	360	52.5	
40	1	53	2	5,905	690	70	690	70	90	148.12	3	-55	55	Yes	Evenly-Spaced	360	101.25	
41	1	53	2	5,905	690	70	690	70	90	151.87	3	-55	55	Yes	Evenly-Spaced	360	150	
42	1	53	2	5,905	690	70	690	70	90	155.62	3	-55	55	Yes	Evenly-Spaced	360	198.75	
43	1	53	2	5,905	690	70	690	70	90	159.39	3	-55	55	Yes	Evenly-Spaced	360	247.5	
44	1	53	2	5,905	690	70	690	70	90	163.12	3	-55	55	Yes	Evenly-Spaced	360	296.25	
45	1	53	2	5,905	690	70	690	70	90	166.87	3	-55	55	Yes	Evenly-Spaced	360	345	
46	1	53	2	5,905	690	70	690	70	90	170.62	3	-55	55	Yes	Evenly-Spaced	360	33.75	
47	1	53	2	5,905	690	70	690	70	90	174.37	3	-55	55	Yes	Evenly-Spaced	360	82.5	
48	1	53	2	5,905	690	70	690	70	90	178.12	3	-55	55	Yes	Evenly-Spaced	360	131.25	
49	1	53	2	5,905	690	70	690	70	90	181.87	3	-55	55	Yes	Evenly-Spaced	360	180	

50	1	53	2	5,905	690	70	690	70	90	185.62	3	-55	55	Yes	Evenly-Spaced	360	228.75	
51	1	53	2	5,905	690	70	690	70	90	189.37	3	-55	55	Yes	Evenly-Spaced	360	277.5	
52	1	53	2	5,905	690	70	690	70	90	193.12	3	-55	55	Yes	Evenly-Spaced	360	326.25	
53	1	53	2	5,905	690	70	690	70	90	196.87	3	-55	55	Yes	Evenly-Spaced	360	15	
54	1	53	2	5,905	690	70	690	70	90	200.62	3	-55	55	Yes	Evenly-Spaced	360	63.75	
55	1	53	2	5,905	690	70	690	70	90	204.37	3	-55	55	Yes	Evenly-Spaced	360	112.5	
56	1	53	2	5,905	690	70	690	70	90	208.12	3	-55	55	Yes	Evenly-Spaced	360	161.25	
57	1	53	2	5,905	690	70	690	70	90	211.87	3	-55	55	Yes	Evenly-Spaced	360	210	
58	1	53	2	5,905	690	70	690	70	90	215.62	3	-55	55	Yes	Evenly-Spaced	360	258.75	
59	1	53	2	5,905	690	70	690	70	90	219.37	3	-55	55	Yes	Evenly-Spaced	360	307.5	
60	1	53	2	5,905	690	70	690	70	90	223.12	3	-55	55	Yes	Evenly-Spaced	360	356.25	
61	1	53	2	5,905	690	70	690	70	90	226.87	3	-55	55	Yes	Evenly-Spaced	360	45	
62	1	53	2	5,905	690	70	690	70	90	230.62	3	-55	55	Yes	Evenly-Spaced	360	93.75	
63	1	53	2	5,905	690	70	690	70	90	234.37	3	-55	55	Yes	Evenly-Spaced	360	142.5	
64	1	53	2	5,905	690	70	690	70	90	238.12	3	-55	55	Yes	Evenly-Spaced	360	191.25	
65	1	53	2	5,905	690	70	690	70	90	241.87	3	-55	55	Yes	Evenly-Spaced	360	240	
66	1	53	2	5,905	690	70	690	70	90	245.62	3	-55	55	Yes	Evenly-Spaced	360	288.75	
67	1	53	2	5,905	690	70	690	70	90	249.37	3	-55	55	Yes	Evenly-Spaced	360	337.5	
68	1	53	2	5,905	690	70	690	70	90	253.12	3	-55	55	Yes	Evenly-Spaced	360	23.25	
69	1	53	2	5,905	690	70	690	70	90	256.87	3	-55	55	Yes	Evenly-Spaced	360	75	
70	1	53	2	5,905	690	70	690	70	90	260.62	3	-55	55	Yes	Evenly-Spaced	360	123.75	
71	1	53	2	5,905	690	70	690	70	90	264.37	3	-55	55	Yes	Evenly-Spaced	360	172.5	
72	1	53	2	5,905	690	70	690	70	90	268.12	3	-55	55	Yes	Evenly-Spaced	360	221.25	
73	1	53	2	5,905	690	70	690	70	90	271.87	3	-55	55	Yes	Evenly-Spaced	360	270	

74	1	53	2	5,905	690	70	690	70	90	275.62	3	-55	55	Yes	Evenly-Spaced	360	318.75	
75	1	53	2	5,905	690	70	690	70	90	279.37	3	-55	55	Yes	Evenly-Spaced	360	7.5	
76	1	53	2	5,905	690	70	690	70	90	283.12	3	-55	55	Yes	Evenly-Spaced	360	56.25	
77	1	53	2	5,905	690	70	690	70	90	286.87	3	-55	55	Yes	Evenly-Spaced	360	105	
78	1	53	2	5,905	690	70	690	70	90	290.62	3	-55	55	Yes	Evenly-Spaced	360	30	
79	1	53	2	5,905	690	70	690	70	90	294.37	3	-55	55	Yes	Evenly-Spaced	360	202.5	
80	1	53	2	5,905	690	70	690	70	90	298.12	3	-55	55	Yes	Evenly-Spaced	360	251.25	
81	1	53	2	5,905	690	70	690	70	90	301.87	3	-55	55	Yes	Evenly-Spaced	360	300	
82	1	53	2	5,905	690	70	690	70	90	305.62	3	-55	55	Yes	Evenly-Spaced	360	348.75	
83	1	53	2	5,905	690	70	690	70	90	309.37	3	-55	55	Yes	Evenly-Spaced	360	37.5	
84	1	53	2	5,905	690	70	690	70	90	313.12	3	-55	55	Yes	Evenly-Spaced	360	86.25	
85	1	53	2	5,905	690	70	690	70	90	316.87	3	-55	55	Yes	Evenly-Spaced	360	135	
86	1	53	2	5,905	690	70	690	70	90	320.62	3	-55	55	Yes	Evenly-Spaced	360	183.75	
87	1	53	2	5,905	690	70	690	70	90	324.37	3	-55	55	Yes	Evenly-Spaced	360	232.5	
88	1	53	2	5,905	690	70	690	70	90	328.12	3	-55	55	Yes	Evenly-Spaced	360	281.25	
89	1	53	2	5,905	690	70	690	70	90	331.87	3	-55	55	Yes	Evenly-Spaced	360	330	
90	1	53	2	5,905	690	70	690	70	90	335.62	3	-55	55	Yes	Evenly-Spaced	360	18.75	
91	1	53	2	5,905	690	70	690	70	90	339.37	3	-55	55	Yes	Evenly-Spaced	360	67.5	
92	1	53	2	5,905	690	70	690	70	90	343.12	3	-55	55	Yes	Evenly-Spaced	360	116.25	
93	1	53	2	5,905	690	70	690	70	90	346.87	3	-55	55	Yes	Evenly-Spaced	360	165	
94	1	53	2	5,905	690	70	690	70	90	350.62	3	-55	55	Yes	Evenly-Spaced	360	213.75	
95	1	53	2	5,905	690	70	690	70	90	354.37	3	-55	55	Yes	Evenly-Spaced	360	262.5	
96	1	53	2	5,905	690	70	690	70	90	358.12	3	-55	55	Yes	Evenly-Spaced	360	311.25	

h. Initial Phase Angle Information

(i) Orbital Plane No.	(i) Satellite No.	(ii) Initial Phase Angle (°)
1	1	0
2	1	48.75
3	1	97.5
4	1	146.25
5	1	195
6	1	243.75
7	1	292.5
8	1	341.25
9	1	30
10	1	78.75
11	1	127.5
12	1	176.25
13	1	225
14	1	273.75
15	1	322.5
16	1	11.25
17	1	60
18	1	108.75
19	1	157.5
20	1	206.25
21	1	255
22	1	303.75
23	1	352.5
24	1	41.25
25	1	90
26	1	138.75
27	1	187.5
28	1	236.25
29	1	285
30	1	333.75
31	1	22.5
32	1	71.25
33	1	120
34	1	168.75
35	1	217.5
36	1	266.25
37	1	315

38	1	3.75
39	1	52.5
40	1	101.25
41	1	150
42	1	198.75
43	1	247.5
44	1	296.25
45	1	345
46	1	33.75
47	1	82.5
48	1	131.25
49	1	180
50	1	228.75
51	1	277.5
52	1	326.25
53	1	15
54	1	63.75
55	1	112.5
56	1	161.25
57	1	210
58	1	258.75
59	1	307.5
60	1	356.25
61	1	45
62	1	93.75
63	1	142.5
64	1	191.25
65	1	240
66	1	288.75
67	1	337.5
68	1	23.25
69	1	75
70	1	123.75
71	1	172.5
72	1	221.25
73	1	270
74	1	318.75
75	1	7.5
76	1	56.25
77	1	105
78	1	30
79	1	202.5

80	1	251.25
81	1	300
82	1	348.75
83	1	37.5
84	1	86.25
85	1	135
86	1	183.75
87	1	232.5
88	1	281.25
89	1	330
90	1	18.75
91	1	67.5
92	1	116.25
93	1	165
94	1	213.75
95	1	262.5
96	1	311.25

S4. Earth-to-Space (Receive) Beams

a. Beam ID:	**BUV46**	n. Beam Peak Flux Density at Command Threshold (dBW/m²):	
b. Beam Frequency (Lower Band Edge) (MHz):	**1626.5**	o. Peak Isotropic Antenna Gain (dBi):	**46**
c. Beam Frequency (Upper Band Edge) (MHz):	**1645.5**	p. Isotropic Antenna Gain at 3 dB Beamwidth (dBi):	
d. Polarization:	**V**	q. Antenna Pointing Error (°):	**0.1**
e. Can the space station vary the channel bandwidth with on-board processing?:	**Yes**	r. Antenna Rotational Error (°):	**0.1**
f. Is this a command beam? (Check box if Yes):	**No**	s. Will a GIMS container file containing all antenna contour data be provided?:	**Yes**
g. Is the beam shapeable? (Check box if Yes):	**No**	t. Under what rules will the associated antenna contours be submitted?:	
h. Is the beam steerable? (Check box if Yes):	**Yes**	u. Provide a list of each orbital plane in which this antenna beam is used.:	
i. Is the beam fed into transponders? (Check box if Yes):	**No**	v. Are all space stations in the NGSO constellation identical?:	**Yes**
j. Maximum G/T (dB/K):	**17.4**	w. What information will be provided with the predicted antenna gain contours?:	
k. Minimum G/T (dB/K):			
l. Maximum Saturation Flux Density (dBW/m²):			
m. Minimum Saturation Flux Density (dBW/m²):			

x. Receive Channels

(i) Channel ID	(ii) Channel Bandwidth (MHz)	(iii) Center Frequency (MHz)	(iv) Channel Frequency (Lower Band Edge) (MHz)	(v) Channel Frequency (Upper Band Edge) (MHz)	(vi) Channel Type	(vii) Point of Communication
bu001	19	1636	1626.5	1645.5	Service Link	

a. Beam ID:	**B2UV46**	n. Beam Peak Flux Density at Command Threshold (dBW/m²):	
b. Beam Frequency (Lower Band Edge) (MHz):	**1646.5**	o. Peak Isotropic Antenna Gain (dBi):	**46**
c. Beam Frequency (Upper Band Edge) (MHz):	**1660.5**	p. Isotropic Antenna Gain at 3 dB Beamwidth (dBi):	
d. Polarization:	**V**	q. Antenna Pointing Error (°):	**0.1**

e. Can the space station vary the channel bandwidth with on-board processing?:	**Yes**	r. Antenna Rotational Error (°):	**0.1**
f. Is this a command beam? (Check box if Yes):	**No**	s. Will a GIMS container file containing all antenna contour data be provided?:	**Yes**
g. Is the beam shapeable? (Check box if Yes):	**No**	t. Under what rules will the associated antenna contours be submitted?:	
h. Is the beam steerable? (Check box if Yes):	**Yes**	u. Provide a list of each orbital plane in which this antenna beam is used.:	
i. Is the beam fed into transponders? (Check box if Yes):	**No**	v. Are all space stations in the NGSO constellation identical?:	**Yes**
j. Maximum G/T (dB/K):	**17.4**	w. What information will be provided with the predicted antenna gain contours?:	
k. Minimum G/T (dB/K):			
l. Maximum Saturation Flux Density (dBW/m²):			
m. Minimum Saturation Flux Density (dBW/m²):			

x. Receive Channels

(i) Channel ID	(ii) Channel Bandwidth (MHz)	(iii) Center Frequency (MHz)	(iv) Channel Frequency (Lower Band Edge) (MHz)	(v) Channel Frequency (Upper Band Edge) (MHz)	(vi) Channel Type	(vii) Point of Communication
bu001	14	1653.5	1646.5	1660.5	Service Link	

a. Beam ID:	**B2UH40**	n. Beam Peak Flux Density at Command Threshold (dBW/m²):	
b. Beam Frequency (Lower Band Edge) (MHz):	**1646.5**	o. Peak Isotropic Antenna Gain (dBi):	**40**
c. Beam Frequency (Upper Band Edge) (MHz):	**1660.5**	p. Isotropic Antenna Gain at 3 dB Beamwidth (dBi):	
d. Polarization:	**H**	q. Antenna Pointing Error (°):	**0.1**
e. Can the space station vary the channel bandwidth with on-board processing?:	**Yes**	r. Antenna Rotational Error (°):	**0.1**
f. Is this a command beam? (Check box if Yes):	**No**	s. Will a GIMS container file containing all antenna contour data be provided?:	**Yes**
g. Is the beam shapeable? (Check box if Yes):	**No**	t. Under what rules will the associated antenna contours be submitted?:	
h. Is the beam steerable? (Check box if Yes):	**Yes**	u. Provide a list of each orbital plane in which this antenna beam is used.:	
i. Is the beam fed into transponders? (Check box if Yes):	**No**	v. Are all space stations in the NGSO constellation identical?:	**Yes**
j. Maximum G/T (dB/K):	**11.4**	w. What information will be provided with the predicted antenna gain contours?:	
k. Minimum G/T (dB/K):			
l. Maximum Saturation Flux Density (dBW/m²):			
m. Minimum Saturation Flux Density (dBW/m²):			

x. Receive Channels

(i) Channel ID	(ii) Channel Bandwidth (MHz)	(iii) Center Frequency (MHz)	(iv) Channel Frequency (Lower Band Edge) (MHz)	(v) Channel Frequency (Upper Band Edge) (MHz)	(vi) Channel Type	(vii) Point of Communication
bu001	14	1653.5	1646.5	1660.5	Service Link	

a. Beam ID:	**BUH46**	n. Beam Peak Flux Density at Command Threshold (dBW/m²):	
b. Beam Frequency (Lower Band Edge) (MHz):	**1626.5**	o. Peak Isotropic Antenna Gain (dBi):	**46**
c. Beam Frequency (Upper Band Edge) (MHz):	**1645.5**	p. Isotropic Antenna Gain at 3 dB Beamwidth (dBi):	
d. Polarization:	**H**	q. Antenna Pointing Error (°):	**0.1**
e. Can the space station vary the channel bandwidth with on-board processing?:	**Yes**	r. Antenna Rotational Error (°):	**0.1**
f. Is this a command beam? (Check box if Yes):	**No**	s. Will a GIMS container file containing all antenna contour data be provided?:	**Yes**
g. Is the beam shapeable? (Check box if Yes):	**No**	t. Under what rules will the associated antenna contours be submitted?:	
h. Is the beam steerable? (Check box if Yes):	**Yes**	u. Provide a list of each orbital plane in which this antenna beam is used.:	
i. Is the beam fed into transponders? (Check box if Yes):	**No**	v. Are all space stations in the NGSO constellation identical?:	**Yes**
j. Maximum G/T (dB/K):	**17.4**	w. What information will be provided with the predicted antenna gain contours?:	
k. Minimum G/T (dB/K):			
l. Maximum Saturation Flux Density (dBW/m²):			

m. Minimum Saturation Flux Density (dBW/m²):	

x. Receive Channels

(i) Channel ID	(ii) Channel Bandwidth (MHz)	(iii) Center Frequency (MHz)	(iv) Channel Frequency (Lower Band Edge) (MHz)	(v) Channel Frequency (Upper Band Edge) (MHz)	(vi) Channel Type	(vii) Point of Communication
bu001	19	1636	1626.5	1645.5	Service Link	

a. Beam ID:	**BUV40**	n. Beam Peak Flux Density at Command Threshold (dBW/m²):	
b. Beam Frequency (Lower Band Edge) (MHz):	**1626.5**	o. Peak Isotropic Antenna Gain (dBi):	**40**
c. Beam Frequency (Upper Band Edge) (MHz):	**1645.5**	p. Isotropic Antenna Gain at 3 dB Beamwidth (dBi):	
d. Polarization:	**V**	q. Antenna Pointing Error (°):	**0.1**
e. Can the space station vary the channel bandwidth with on-board processing?:	**Yes**	r. Antenna Rotational Error (°):	**0.1**
f. Is this a command beam? (Check box if Yes):	**No**	s. Will a GIMS container file containing all antenna contour data be provided?:	**Yes**
g. Is the beam shapeable? (Check box if Yes):	**No**	t. Under what rules will the associated antenna contours be submitted?:	
h. Is the beam steerable? (Check box if Yes):	**Yes**	u. Provide a list of each orbital plane in which this antenna beam is used.:	
i. Is the beam fed into transponders? (Check box if Yes):	**No**	v. Are all space stations in the NGSO constellation identical?:	**Yes**
j. Maximum G/T (dB/K):	**11.4**	w. What information will be provided with the predicted antenna gain contours?:	
k. Minimum G/T (dB/K):			
l. Maximum Saturation Flux Density (dBW/m²):			
m. Minimum Saturation Flux Density (dBW/m²):			

x. Receive Channels

(i) Channel ID	(ii) Channel Bandwidth (MHz)	(iii) Center Frequency (MHz)	(iv) Channel Frequency (Lower Band Edge) (MHz)	(v) Channel Frequency (Upper Band Edge) (MHz)	(vi) Channel Type	(vii) Point of Communication
bu001	19	1636	1626.5	1645.5	Service Link	

a. Beam ID:	**B2UH46**	n. Beam Peak Flux Density at Command Threshold (dBW/m²):	
b. Beam Frequency (Lower Band Edge) (MHz):	**1646.5**	o. Peak Isotropic Antenna Gain (dBi):	**46**
c. Beam Frequency (Upper Band Edge) (MHz):	**1660.5**	p. Isotropic Antenna Gain at 3 dB Beamwidth (dBi):	
d. Polarization:	**H**	q. Antenna Pointing Error (°):	**0.1**
e. Can the space station vary the channel bandwidth with on-board processing?:	**Yes**	r. Antenna Rotational Error (°):	**0.1**
f. Is this a command beam? (Check box if Yes):	**No**	s. Will a GIMS container file containing all antenna contour data be provided?:	**Yes**
g. Is the beam shapeable? (Check box if Yes):	**No**	t. Under what rules will the associated antenna contours be submitted?:	
h. Is the beam steerable? (Check box if Yes):	**Yes**	u. Provide a list of each orbital plane in which this antenna beam is used.:	
i. Is the beam fed into transponders? (Check box if Yes):	**No**	v. Are all space stations in the NGSO constellation identical?:	**Yes**
j. Maximum G/T (dB/K):	**17.4**	w. What information will be provided with the predicted antenna gain contours?:	
k. Minimum G/T (dB/K):			
l. Maximum Saturation Flux Density (dBW/m²):			
m. Minimum Saturation Flux Density (dBW/m²):			

x. Receive Channels

(i) Channel ID	(ii) Channel Bandwidth (MHz)	(iii) Center Frequency (MHz)	(iv) Channel Frequency (Lower Band Edge) (MHz)	(v) Channel Frequency (Upper Band Edge) (MHz)	(vi) Channel Type	(vii) Point of Communication
bu001	14	1653.5	1646.5	1660.5	Service Link	

a. Beam ID:	**B2UV40**	n. Beam Peak Flux Density at Command Threshold (dBW/m²):	
b. Beam Frequency (Lower Band Edge) (MHz):	**1646.5**	o. Peak Isotropic Antenna Gain (dBi):	**40**

c. Beam Frequency (Upper Band Edge) (MHz):	**1660.5**	p. Isotropic Antenna Gain at 3 dB Beamwidth (dBi):	
d. Polarization:	**V**	q. Antenna Pointing Error (°):	**0.1**
e. Can the space station vary the channel bandwidth with on-board processing?:	**Yes**	r. Antenna Rotational Error (°):	**0.1**
f. Is this a command beam? (Check box if Yes):	**No**	s. Will a GIMS container file containing all antenna contour data be provided?:	**Yes**
g. Is the beam shapeable? (Check box if Yes):	**No**	t. Under what rules will the associated antenna contours be submitted?:	
h. Is the beam steerable? (Check box if Yes):	**Yes**	u. Provide a list of each orbital plane in which this antenna beam is used.:	
i. Is the beam fed into transponders? (Check box if Yes):	**No**	v. Are all space stations in the NGSO constellation identical?:	**Yes**
j. Maximum G/T (dB/K):	**11.4**	w. What information will be provided with the predicted antenna gain contours?:	
k. Minimum G/T (dB/K):			
l. Maximum Saturation Flux Density (dBW/m²):			
m. Minimum Saturation Flux Density (dBW/m²):			

x. Receive Channels

(i) Channel ID	(ii) Channel Bandwidth (MHz)	(iii) Center Frequency (MHz)	(iv) Channel Frequency (Lower Band Edge) (MHz)	(v) Channel Frequency (Upper Band Edge) (MHz)	(vi) Channel Type	(vii) Point of Communication
bu001	14	1653.5	1646.5	1660.5	Service Link	

a. Beam ID:	**BUH40**	n. Beam Peak Flux Density at Command Threshold (dBW/m²):	
b. Beam Frequency (Lower Band Edge) (MHz):	**1626.5**	o. Peak Isotropic Antenna Gain (dBi):	**40**
c. Beam Frequency (Upper Band Edge) (MHz):	**1645.5**	p. Isotropic Antenna Gain at 3 dB Beamwidth (dBi):	
d. Polarization:	**H**	q. Antenna Pointing Error (°):	**0.1**
e. Can the space station vary the channel bandwidth with on-board processing?:	**Yes**	r. Antenna Rotational Error (°):	**0.1**
f. Is this a command beam? (Check box if Yes):	**No**	s. Will a GIMS container file containing all antenna contour data be provided?:	**Yes**
g. Is the beam shapeable? (Check box if Yes):	**No**	t. Under what rules will the associated antenna contours be submitted?:	
h. Is the beam steerable? (Check box if Yes):	**Yes**	u. Provide a list of each orbital plane in which this antenna beam is used.:	
i. Is the beam fed into transponders? (Check box if Yes):	**No**	v. Are all space stations in the NGSO constellation identical?:	**Yes**
j. Maximum G/T (dB/K):	**11.4**	w. What information will be provided with the predicted antenna gain contours?:	
k. Minimum G/T (dB/K):			
l. Maximum Saturation Flux Density (dBW/m²):			
m. Minimum Saturation Flux Density (dBW/m²):			

x. Receive Channels

(i) Channel ID	(ii) Channel Bandwidth (MHz)	(iii) Center Frequency (MHz)	(iv) Channel Frequency (Lower Band Edge) (MHz)	(v) Channel Frequency (Upper Band Edge) (MHz)	(vi) Channel Type	(vii) Point of Communication
bu001	19	1636	1626.5	1645.5	Service Link	

S5. Space-to-Earth (Transmit) Beams

a. Beam ID:	**BDV40**	n. Beam Peak Flux Density at Command Threshold (dBW/m²):	
b. Beam Frequency (Lower Band Edge) (MHz):	**1525**	o. Peak Isotropic Antenna Gain (dBi):	**40**
c. Beam Frequency (Upper Band Edge) (MHz):	**1544**	p. Isotropic Antenna Gain at 3 dB Beamwidth (dBi):	
d. Polarization:	**V**	q. Antenna Pointing Error (°):	**0.1**
e. Can the space station vary the channel bandwidth with on-board processing?:	**Yes**	r. Antenna Rotational Error (°):	**0.1**
f. Is this a command beam? (Check box if Yes):	**No**	s. Will a GIMS container file containing all antenna contour data be provided?:	**Yes**

g. Is the beam shapeable? (Check box if Yes):	**No**	t. Under what rules will the associated antenna contours be submitted?:	
h. Is the beam steerable? (Check box if Yes):	**Yes**	u. Provide a list of each orbital plane in which this antenna beam is used.:	
i. Is the beam fed into transponders? (Check box if Yes):	**No**	v. Are all space stations in the NGSO constellation identical?:	**Yes**
j. Maximum Transmit EIRP Density (dBW/Ref BW):	**22.9**	w. What information will be provided with the predicted antenna gain contours?:	
k. Maximum Transmit EIRP (dBW):	**54.7**		

x. Transmit Channels

(i) Channel ID	(ii) Channel Bandwidth (MHz)	(iii) Center Frequency (MHz)	(iv) Channel Frequency (Lower Band Edge) (MHz)	(v) Channel Frequency (Upper Band Edge) (MHz)	(vi) Channel Type	(vii) Point of Communication
bd001	19	1534.5	1525	1544	Service Link	

y. Max. Power-Flux Densities

			Angles of Arrival PFD						Geographic Region PFD				
(i) Beam Sub-Frequency (Lower Band Edge) (MHz)	(ii) Beam Sub-Frequency (Upper Band Edge) (MHz)	(iii) Reference Bandwidth (BW)	(iv) 0-2° (dBW/m²/BW)	(v) 2-5° (dBW/m²/BW)	(vi) 5-15° (dBW/m²/BW)	(vii) 15-20° (dBW/m²/BW)	(viii) 20-25° (dBW/m²/BW)	(ix) 25-90° (dBW/m²/BW)	(x) Southeastern Region (dBW/m²/BW)	(xi) Northeastern Region (dBW/m²/BW)	(xii) Western Region (dBW/m²/BW)	(xiii) Other Region (dBW/m²/BW)	(xiv) Energy Dispersal Bandwidth (kHz)
1525	1544	4 kHz	-122.7	-122.7	-117.8	-112.5	-113.3	-110.8					

a. Beam ID:	**B2DH40**	n. Beam Peak Flux Density at Command Threshold (dBW/m²):	
b. Beam Frequency (Lower Band Edge) (MHz):	**1545**	o. Peak Isotropic Antenna Gain (dBi):	**40**
c. Beam Frequency (Upper Band Edge) (MHz):	**1559**	p. Isotropic Antenna Gain at 3 dB Beamwidth (dBi):	
d. Polarization:	**H**	q. Antenna Pointing Error (°):	**0.1**
e. Can the space station vary the channel bandwidth with on-board processing?:	**Yes**	r. Antenna Rotational Error (°):	**0.1**
f. Is this a command beam? (Check box if Yes):	**No**	s. Will a GIMS container file containing all antenna contour data be provided?:	**Yes**
g. Is the beam shapeable? (Check box if Yes):	**No**	t. Under what rules will the associated antenna contours be submitted?:	
h. Is the beam steerable? (Check box if Yes):	**Yes**	u. Provide a list of each orbital plane in which this antenna beam is used.:	
i. Is the beam fed into transponders? (Check box if Yes):	**No**	v. Are all space stations in the NGSO constellation identical?:	**Yes**
j. Maximum Transmit EIRP Density (dBW/Ref BW):	**22.9**	w. What information will be provided with the predicted antenna gain contours?:	
k. Maximum Transmit EIRP (dBW):	**54.7**		

x. Transmit Channels

(i) Channel ID	(ii) Channel Bandwidth (MHz)	(iii) Center Frequency (MHz)	(iv) Channel Frequency (Lower Band Edge) (MHz)	(v) Channel Frequency (Upper Band Edge) (MHz)	(vi) Channel Type	(vii) Point of Communication
bd001	14	1552	1545	1559	Service Link	

y. Max. Power-Flux Densities

			Angles of Arrival PFD						Geographic Region PFD				
(i) Beam Sub-Frequency (Lower Band Edge) (MHz)	(ii) Beam Sub-Frequency (Upper Band Edge) (MHz)	(iii) Reference Bandwidth (BW)	(iv) 0-2° (dBW/m²/BW)	(v) 2-5° (dBW/m²/BW)	(vi) 5-15° (dBW/m²/BW)	(vii) 15-20° (dBW/m²/BW)	(viii) 20-25° (dBW/m²/BW)	(ix) 25-90° (dBW/m²/BW)	(x) Southeastern Region (dBW/m²/BW)	(xi) Northeastern Region (dBW/m²/BW)	(xii) Western Region (dBW/m²/BW)	(xiii) Other Region (dBW/m²/BW)	(xiv) Energy Dispersal Bandwidth (kHz)
1545	1559	4 kHz	-122.7	-122.7	-117.8	-112.5	-113.3	-110.8					

a. Beam ID:	**B2DV40**	n. Beam Peak Flux Density at Command Threshold (dBW/m²):	
b. Beam Frequency (Lower Band Edge) (MHz):	**1545**	o. Peak Isotropic Antenna Gain (dBi):	**40**
c. Beam Frequency (Upper Band Edge) (MHz):	**1559**	p. Isotropic Antenna Gain at 3 dB Beamwidth (dBi):	
d. Polarization:	**V**	q. Antenna Pointing Error (°):	**0.1**
e. Can the space station vary the channel bandwidth with on-board processing?:	**Yes**	r. Antenna Rotational Error (°):	**0.1**

f. Is this a command beam? (Check box if Yes):	**No**	s. Will a GIMS container file containing all antenna contour data be provided?:	**Yes**
g. Is the beam shapeable? (Check box if Yes):	**No**	t. Under what rules will the associated antenna contours be submitted?:	
h. Is the beam steerable? (Check box if Yes):	**Yes**	u. Provide a list of each orbital plane in which this antenna beam is used.:	
i. Is the beam fed into transponders? (Check box if Yes):	**No**	v. Are all space stations in the NGSO constellation identical?:	**Yes**
j. Maximum Transmit EIRP Density (dBW/Ref BW):	**22.9**	w. What information will be provided with the predicted antenna gain contours?:	
k. Maximum Transmit EIRP (dBW):	**54.7**		

x. Transmit Channels

(i) Channel ID	(ii) Channel Bandwidth (MHz)	(iii) Center Frequency (MHz)	(iv) Channel Frequency (Lower Band Edge) (MHz)	(v) Channel Frequency (Upper Band Edge) (MHz)	(vi) Channel Type	(vii) Point of Communication
bd001	14	1552	1545	1559	Service Link	

y. Max. Power-Flux Densities

			Angles of Arrival PFD						Geographic Region PFD				
(i) Beam Sub-Frequency (Lower Band Edge) (MHz)	(ii) Beam Sub-Frequency (Upper Band Edge) (MHz)	(iii) Reference Bandwidth (BW)	(iv) 0-2° (dBW/m²/BW)	(v) 2-5° (dBW/m²/BW)	(vi) 5-15° (dBW/m²/BW)	(vii) 15-20° (dBW/m²/BW)	(viii) 20-25° (dBW/m²/BW)	(ix) 25-90° (dBW/m²/BW)	(x) Southeastern Region (dBW/m²/BW)	(xi) Northeastern Region (dBW/m²/BW)	(xii) Western Region (dBW/m²/BW)	(xiii) Other Region (dBW/m²/BW)	(xiv) Energy Dispersal Bandwidth (kHz)
1545	1559	4 kHz	-122.7	-122.7	-117.8	-112.5	-113.3	-110.8					

a. Beam ID:	**BDH46**	n. Beam Peak Flux Density at Command Threshold (dBW/m²):	
b. Beam Frequency (Lower Band Edge) (MHz):	**1525**	o. Peak Isotropic Antenna Gain (dBi):	**46**
c. Beam Frequency (Upper Band Edge) (MHz):	**1544**	p. Isotropic Antenna Gain at 3 dB Beamwidth (dBi):	
d. Polarization:	**H**	q. Antenna Pointing Error (°):	**0.1**
e. Can the space station vary the channel bandwidth with on-board processing?:	**Yes**	r. Antenna Rotational Error (°):	**0.1**
f. Is this a command beam? (Check box if Yes):	**No**	s. Will a GIMS container file containing all antenna contour data be provided?:	**Yes**
g. Is the beam shapeable? (Check box if Yes):	**No**	t. Under what rules will the associated antenna contours be submitted?:	
h. Is the beam steerable? (Check box if Yes):	**Yes**	u. Provide a list of each orbital plane in which this antenna beam is used.:	
i. Is the beam fed into transponders? (Check box if Yes):	**No**	v. Are all space stations in the NGSO constellation identical?:	**Yes**
j. Maximum Transmit EIRP Density (dBW/Ref BW):	**22.9**	w. What information will be provided with the predicted antenna gain contours?:	
k. Maximum Transmit EIRP (dBW):	**54.7**		

x. Transmit Channels

(i) Channel ID	(ii) Channel Bandwidth (MHz)	(iii) Center Frequency (MHz)	(iv) Channel Frequency (Lower Band Edge) (MHz)	(v) Channel Frequency (Upper Band Edge) (MHz)	(vi) Channel Type	(vii) Point of Communication
bd001	19	1534.5	1525	1544	Service Link	

y. Max. Power-Flux Densities

			Angles of Arrival PFD						Geographic Region PFD				
(i) Beam Sub-Frequency (Lower Band Edge) (MHz)	(ii) Beam Sub-Frequency (Upper Band Edge) (MHz)	(iii) Reference Bandwidth (BW)	(iv) 0-2° (dBW/m²/BW)	(v) 2-5° (dBW/m²/BW)	(vi) 5-15° (dBW/m²/BW)	(vii) 15-20° (dBW/m²/BW)	(viii) 20-25° (dBW/m²/BW)	(ix) 25-90° (dBW/m²/BW)	(x) Southeastern Region (dBW/m²/BW)	(xi) Northeastern Region (dBW/m²/BW)	(xii) Western Region (dBW/m²/BW)	(xiii) Other Region (dBW/m²/BW)	(xiv) Energy Dispersal Bandwidth (kHz)
1525	1544	4 kHz	-122.7	-122.7	-117.8	-112.5	-111.3	-110.8					

a. Beam ID:	**B2DH46**	n. Beam Peak Flux Density at Command Threshold (dBW/m²):	
b. Beam Frequency (Lower Band Edge) (MHz):	**1545**	o. Peak Isotropic Antenna Gain (dBi):	**46**
c. Beam Frequency (Upper Band Edge) (MHz):	**1559**	p. Isotropic Antenna Gain at 3 dB Beamwidth (dBi):	
d. Polarization:	**H**	q. Antenna Pointing Error (°):	**0.1**

e. Can the space station vary the channel bandwidth with on-board processing?:	**Yes**	r. Antenna Rotational Error (°):	**0.1**
f. Is this a command beam? (Check box if Yes):	**No**	s. Will a GIMS container file containing all antenna contour data be provided?:	**Yes**
g. Is the beam shapeable? (Check box if Yes):	**No**	t. Under what rules will the associated antenna contours be submitted?:	
h. Is the beam steerable? (Check box if Yes):	**Yes**	u. Provide a list of each orbital plane in which this antenna beam is used.:	
i. Is the beam fed into transponders? (Check box if Yes):	**No**	v. Are all space stations in the NGSO constellation identical?:	**Yes**
j. Maximum Transmit EIRP Density (dBW/Ref BW):	**22.9**	w. What information will be provided with the predicted antenna gain contours?:	
k. Maximum Transmit EIRP (dBW):	**54.7**		

x. Transmit Channels

(i) Channel ID	(ii) Channel Bandwidth (MHz)	(iii) Center Frequency (MHz)	(iv) Channel Frequency (Lower Band Edge) (MHz)	(v) Channel Frequency (Upper Band Edge) (MHz)	(vi) Channel Type	(vii) Point of Communication
bd001	14	1552	1545	1559	Service Link	

y. Max. Power-Flux Densities

			Angles of Arrival PFD						Geographic Region PFD				
(i) Beam Sub-Frequency (Lower Band Edge) (MHz)	(ii) Beam Sub-Frequency (Upper Band Edge) (MHz)	(iii) Reference Bandwidth (BW)	(iv) 0-2° (dBW/m²/BW)	(v) 2-5° (dBW/m²/BW)	(vi) 5-15° (dBW/m²/BW)	(vii) 15-20° (dBW/m²/BW)	(viii) 20-25° (dBW/m²/BW)	(ix) 25-90° (dBW/m²/BW)	(x) Southeastern Region (dBW/m²/BW)	(xi) Northeastern Region (dBW/m²/BW)	(xii) Western Region (dBW/m²/BW)	(xiii) Other Region (dBW/m²/BW)	(xiv) Energy Dispersal Bandwidth (kHz)
1545	1559	4 kHz	-122.7	-122.7	-117.8	-112.5	-111.3	-110.8					

a. Beam ID:	**B2DV46**	n. Beam Peak Flux Density at Command Threshold (dBW/m²):	
b. Beam Frequency (Lower Band Edge) (MHz):	**1545**	o. Peak Isotropic Antenna Gain (dBi):	**46**
c. Beam Frequency (Upper Band Edge) (MHz):	**1559**	p. Isotropic Antenna Gain at 3 dB Beamwidth (dBi):	
d. Polarization:	**V**	q. Antenna Pointing Error (°):	**0.1**
e. Can the space station vary the channel bandwidth with on-board processing?:	**Yes**	r. Antenna Rotational Error (°):	**0.1**
f. Is this a command beam? (Check box if Yes):	**No**	s. Will a GIMS container file containing all antenna contour data be provided?:	**Yes**
g. Is the beam shapeable? (Check box if Yes):	**No**	t. Under what rules will the associated antenna contours be submitted?:	
h. Is the beam steerable? (Check box if Yes):	**Yes**	u. Provide a list of each orbital plane in which this antenna beam is used.:	
i. Is the beam fed into transponders? (Check box if Yes):	**No**	v. Are all space stations in the NGSO constellation identical?:	**Yes**
j. Maximum Transmit EIRP Density (dBW/Ref BW):	**22.9**	w. What information will be provided with the predicted antenna gain contours?:	
k. Maximum Transmit EIRP (dBW):	**54.7**		

x. Transmit Channels

(i) Channel ID	(ii) Channel Bandwidth (MHz)	(iii) Center Frequency (MHz)	(iv) Channel Frequency (Lower Band Edge) (MHz)	(v) Channel Frequency (Upper Band Edge) (MHz)	(vi) Channel Type	(vii) Point of Communication
bd001	14	1552	1545	1559	Service Link	

y. Max. Power-Flux Densities

			Angles of Arrival PFD						Geographic Region PFD				
(i) Beam Sub-Frequency (Lower Band Edge) (MHz)	(ii) Beam Sub-Frequency (Upper Band Edge) (MHz)	(iii) Reference Bandwidth (BW)	(iv) 0-2° (dBW/m²/BW)	(v) 2-5° (dBW/m²/BW)	(vi) 5-15° (dBW/m²/BW)	(vii) 15-20° (dBW/m²/BW)	(viii) 20-25° (dBW/m²/BW)	(ix) 25-90° (dBW/m²/BW)	(x) Southeastern Region (dBW/m²/BW)	(xi) Northeastern Region (dBW/m²/BW)	(xii) Western Region (dBW/m²/BW)	(xiii) Other Region (dBW/m²/BW)	(xiv) Energy Dispersal Bandwidth (kHz)
1545	1559	4 kHz	-122.7	-122.7	-117.8	-112.5	-113.3	-110.8					

a. Beam ID:	**BDH40**	n. Beam Peak Flux Density at Command Threshold (dBW/m²):	
b. Beam Frequency (Lower Band Edge) (MHz):	**1525**	o. Peak Isotropic Antenna Gain (dBi):	**40**
c. Beam Frequency (Upper Band Edge) (MHz):	**1544**	p. Isotropic Antenna Gain at 3 dB Beamwidth (dBi):	

d. Polarization:	**H**	q. Antenna Pointing Error (°):	**0.1**
e. Can the space station vary the channel bandwidth with on-board processing?:	**Yes**	r. Antenna Rotational Error (°):	**0.1**
f. Is this a command beam? (Check box if Yes):	**No**	s. Will a GIMS container file containing all antenna contour data be provided?:	**Yes**
g. Is the beam shapeable? (Check box if Yes):	**No**	t. Under what rules will the associated antenna contours be submitted?:	
h. Is the beam steerable? (Check box if Yes):	**Yes**	u. Provide a list of each orbital plane in which this antenna beam is used.:	
i. Is the beam fed into transponders? (Check box if Yes):	**No**	v. Are all space stations in the NGSO constellation identical?:	**Yes**
j. Maximum Transmit EIRP Density (dBW/Ref BW):	**22.9**	w. What information will be provided with the predicted antenna gain contours?:	
k. Maximum Transmit EIRP (dBW):	**54.7**		

x. Transmit Channels

(i) Channel ID	(ii) Channel Bandwidth (MHz)	(iii) Center Frequency (MHz)	(iv) Channel Frequency (Lower Band Edge) (MHz)	(v) Channel Frequency (Upper Band Edge) (MHz)	(vi) Channel Type	(vii) Point of Communication
bd001	19	1534.5	1525	1544	Service Link	

y. Max. Power-Flux Densities

			Angles of Arrival PFD						Geographic Region PFD				
(i) Beam Sub-Frequency (Lower Band Edge) (MHz)	(ii) Beam Sub-Frequency (Upper Band Edge) (MHz)	(iii) Reference Bandwidth (BW)	(iv) 0-2° (dBW/m²/BW)	(v) 2-5° (dBW/m²/BW)	(vi) 5-15° (dBW/m²/BW)	(vii) 15-20° (dBW/m²/BW)	(viii) 20-25° (dBW/m²/BW)	(ix) 25-90° (dBW/m²/BW)	(x) Southeastern Region (dBW/m²/BW)	(xi) Northeastern Region (dBW/m²/BW)	(xii) Western Region (dBW/m²/BW)	(xiii) Other Region (dBW/m²/BW)	(xiv) Energy Dispersal Bandwidth (kHz)
1525	1544	4 kHz	-122.7	-122.7	-117.8	-112.5	-113.3	-110.8					

a. Beam ID:	**BDV46**	n. Beam Peak Flux Density at Command Threshold (dBW/m²):	
b. Beam Frequency (Lower Band Edge) (MHz):	**1525**	o. Peak Isotropic Antenna Gain (dBi):	**46**
c. Beam Frequency (Upper Band Edge) (MHz):	**1544**	p. Isotropic Antenna Gain at 3 dB Beamwidth (dBi):	
d. Polarization:	**V**	q. Antenna Pointing Error (°):	**0.1**
e. Can the space station vary the channel bandwidth with on-board processing?:	**Yes**	r. Antenna Rotational Error (°):	**0.1**
f. Is this a command beam? (Check box if Yes):	**No**	s. Will a GIMS container file containing all antenna contour data be provided?:	**Yes**
g. Is the beam shapeable? (Check box if Yes):	**No**	t. Under what rules will the associated antenna contours be submitted?:	
h. Is the beam steerable? (Check box if Yes):	**Yes**	u. Provide a list of each orbital plane in which this antenna beam is used.:	
i. Is the beam fed into transponders? (Check box if Yes):	**No**	v. Are all space stations in the NGSO constellation identical?:	**Yes**
j. Maximum Transmit EIRP Density (dBW/Ref BW):	**22.9**	w. What information will be provided with the predicted antenna gain contours?:	
k. Maximum Transmit EIRP (dBW):	**54.7**		

x. Transmit Channels

(i) Channel ID	(ii) Channel Bandwidth (MHz)	(iii) Center Frequency (MHz)	(iv) Channel Frequency (Lower Band Edge) (MHz)	(v) Channel Frequency (Upper Band Edge) (MHz)	(vi) Channel Type	(vii) Point of Communication
bd001	19	1534.5	1525	1544	Service Link	

y. Max. Power-Flux Densities

			Angles of Arrival PFD						Geographic Region PFD				
(i) Beam Sub-Frequency (Lower Band Edge) (MHz)	(ii) Beam Sub-Frequency (Upper Band Edge) (MHz)	(iii) Reference Bandwidth (BW)	(iv) 0-2° (dBW/m²/BW)	(v) 2-5° (dBW/m²/BW)	(vi) 5-15° (dBW/m²/BW)	(vii) 15-20° (dBW/m²/BW)	(viii) 20-25° (dBW/m²/BW)	(ix) 25-90° (dBW/m²/BW)	(x) Southeastern Region (dBW/m²/BW)	(xi) Northeastern Region (dBW/m²/BW)	(xii) Western Region (dBW/m²/BW)	(xiii) Other Region (dBW/m²/BW)	(xiv) Energy Dispersal Bandwidth (kHz)
1525	1544	4 kHz	-122.7	-122.7	-117.8	-112.5	-113.3	-110.8					

S6. Space-to-Space (Receive) Beams

S7. Space-to-Space (Transmit) Beams

S8. Attachments

Beam ID	Direction of Transmission	(i) Document Type	(ii) If Document Type is "Other", provide short description	(iii) File Name
B2DH40	Space-to-Earth (Transmit)	GIMS Container File		BDL40_E_SA.gxt
B2DV46	Space-to-Earth (Transmit)	GIMS Container File		BDL46_E_SA.gxt
B2UH40	Earth-to-Space (Receive)	GIMS Container File		BUL40_R_SA.gxt
B2UH46	Earth-to-Space (Receive)	GIMS Container File		BUL46_R_SA.gxt
BDH40	Space-to-Earth (Transmit)	GIMS Container File		SL40dBi_690km.gxt
BDH40	Space-to-Earth (Transmit)	GIMS Container File		BDL40_E_SA.gxt
BDH46	Space-to-Earth (Transmit)	GIMS Container File		SL46dBi_690km.gxt
BDV40	Space-to-Earth (Transmit)	GIMS Container File		Satellite_SL_FOV_690km.gxt
BDV46	Space-to-Earth (Transmit)	GIMS Container File		SL46dBi_690km_MEA20.gxt
BDV46	Space-to-Earth (Transmit)	GIMS Container File		BDL46_E_SA.gxt
BUH40	Earth-to-Space (Receive)	GIMS Container File		BUL40_R_SA.gxt
BUH46	Earth-to-Space (Receive)	GIMS Container File		BUL46_R_SA.gxt
BUV46	Earth-to-Space (Receive)	GIMS Container File		BUL46_R_SA.gxt